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BRITISH MEDICAL JOURNAL

LONDON SATURDAY OCTOBER 16 1943

PEPTIC ULCER AND DYSPEPSIA IN THE ARMY

BY

Sir HENRY TIDY, K.B.E., D.M., F.R.C.P.

Hon. Major-General, A.M.S.

This communication is principally concerned with peptic ulcer, but some reference will be made to other forms of dyspepsia met with in the Army. For reasons of security statistics cannot always be given in a strictly comparable form. The types of dyspepsia occurring in the Service may be classified as follows (Tidy, 1941): (1) Peptic ulcer. (2) Gastritis and functional dyspepsia. (3) Transient dyspepsia. (4) Miscellaneous group, including such conditions as dyspepsia due to or associated with pathological changes in the gall-bladder and appendix, duodenal diverticula, and carcinoma of the stomach: the number in the Army has been very small.

Transient Dyspepsia

This type tends to develop in new recruits before they are hardened to Army routine: possibly it is less common now than earlier in the war. These men are in the main successfully dealt with in the units. It is most important that they should not be sent to hospitals or to specialists—procedures which are apt to convert a transient into a chronic dyspeptic, and finally into a useless soldier.

Gastritis and Functional Dyspepsia

No satisfactory or accepted nomenclature has been evolved for this group. "Gastritis" is now being used with a technical meaning by gastroscopists, and will probably need to be reserved for this. "Functional" tends to suggest psychoneurosis. This should not be the sole meaning of "functional dyspepsia," which refers to a disturbance of the functions in the absence of recognizable anatomical changes or demonstrable disease in the stomach and duodenum and elsewhere in the body.

Graham and Kerr in 1941 found a history of symptoms dating from civilian life in 80%, with an average duration of 7 years, most of the cases being collected in 1940. I am indebted to several officers for statistics of admissions in 1942, the averages being: age 32½, service 2½ years, duration of symptoms 5½ years, onset in civilian life 75%.

Careful studies have been made of this group in several hospitals without any definite result. Gastroscopy reveals a small proportion of organic gastritis. I do not feel satisfied at present that clinical syndromes can be connected with different types of gastritis so diagnosed, in spite of statements to this effect. It would appear that gastroscopy has not yet sufficiently established the limits of variation of a normal gastric mucous membrane or the interpretation and clinical significance of variations judged to be abnormal.

Radiological studies of the mucous membrane leave an unsatisfactory position. This applies especially to the diagnosis of "duodenitis," a term which is used with widely different meanings and interpretations by various observers. Arguments based on changes in the gastric mucous membrane are not valid for the duodenum, as is illustrated by the absence of neoplastic changes in the latter. That some form of chronic duodenitis may exist can scarcely be doubted, but evidence of its nature and interpretation and clinical significance is absent. Duodenitis at present is a radiographical conception without clinical, surgical, or pathological support, and without agreement among radiologists. Dogmatic diagnoses and conclusions are unjustified on present evidence and should not be unreservedly accepted. The diagnosis duodenitis would appear to be used by some radiologists in conditions in which they are uncertain whether or not ulceration has occurred.

Of these cases of "functional dyspepsia" some are organic in the sense of disturbance of function, some are essentially psychoneurotic, and some others are made so.

Symptoms in this group are far more resistant to treatment than are those of ulcers, and cases need much longer in hospital for "cure" or alleviation; the longer the period in hospital the shorter is the interval to the next recurrence. There should be no attempt to retain a man in hospital in order to effect a "cure" which wide experience has shown is quickly followed by relapse on returning to duty. As soon as investigations have proved the absence of organic changes, which should be within 10 days, these men should be returned to their units. Nor should they be placed on "light duty" or "light diet." The unit is the proper authority to decide by observation if a man can be usefully retained in his unit or in his category.

Under Service conditions, and probably also in civilian life, prolonged investigations and minute inquiries tend to produce or increase a psychoneurotic factor, and a man rapidly progresses to the state of being useless as a soldier. A hospital consequently should reduce its investigations to a minimum and not aim at a standard full investigation. Gastroscopy should be restricted to those circumstances in which it has already proved its value in civilian life—e.g., for the decision as to the presence of a neoplasm or the presence of an ulcer radiologically doubtful. In the Services it should not be used for the identification and classification of gastritis. Nevertheless once a man is sent to hospital some investigation, clinical or otherwise, is inevitable. It is therefore advisable that this type should not be sent for either in-patient or out-patient investigation, or for report by a medical specialist, without definite reasons. The least of these procedures will magnify the disorder and their repetition render it incurable.

The M.O. of the unit thus has a special responsibility in keeping these men on duty, to which many become inured and are thus saved for the Service. His examination should be of the same degree and not more minute than for comparative complaints in other systems of the body. Unless he sends a large number to hospital he runs the risk of missing occasionally an active ulcer, with resulting misfortunes; and if he is to take the responsibility in the interest of the Services he should know that the possibility of an occasional mistake is fully understood. In practice, catastrophes are rare, and they may also occur after the fullest examination in this as in other conditions.

There is little doubt that this type of dyspepsia has increased rapidly in civilian life in recent years, and is not inconsistent with routine employment with occasional absences. The question of its relation to the increase of peptic ulcer has scarcely

been considered. Like peptic ulcer, it was not prevalent in the last war among British troops.

Relative Incidence of Peptic Ulcer and Non-Ulcer Dyspepsia among Army Personnel

The distribution of dyspepsia between the chief groups among Army personnel may vary considerably in different hospitals, partly depending on the type of unit in the neighbourhood and the opinions and experience of medical officers. The following figures are official returns of diagnoses of Army personnel on discharge from all hospitals in Britain for a certain period in the latter half of 1941. For comparison the discharges from the Army for the same period are also included. These figures give 58% of admissions as ulcers. Newman and Payne found nearly 90% of ulcers early in 1940, but the material had largely been sifted of non-ulcer dyspepsia in France. Of 2,500 hospital cases which I analysed (Tidy, 1941), ulcers formed 52%.

	Total Cases	Gastric Ulcer	Duodenal Ulcer	Non-Ulcer Dyspepsia
		Cases	Cases	Cases
Discharged from hospital ..	2,851	453 (16%)	1,194 (42%)	1,204 (42%)
Discharged from the Army ..	2,149	460	1,620	69

Discharges from the Army for non-ulcer dyspepsia are negligible compared with the number in hospital, and this supports the opinion that such men can make useful soldiers in spite of their handicap. No physician would suggest as an explanation of the small number of discharges from the Army for non-ulcer dyspepsia that the hospital treatment effected a complete cure. It has, however, occurred that such men, though useless and a handicap to a unit, are retained in the Service owing to the disinclination of medical boards to discharge men under this diagnosis, and that discharge ultimately is effected after reference to a psychiatrist has resulted in a diagnosis of psychoneurosis.

Some subjects of non-ulcer dyspepsia are unfit for medical service on account of their disability: the decision should be best made by those who have had the advantage of prolonged observation. Medical boards have to meet the difficulty in a practical manner without too many rules to help or hamper them, for it is certain that a loose acceptance of the diagnosis of non-ulcer dyspepsia as an invaliding disability is inadvisable.

Peptic Ulcer in the Army

The large number of admissions to hospital of men diagnosed as suffering from peptic ulcer and from non-organic dyspepsia attracted attention as early as Oct., 1939, and took the medical profession by surprise. The different circumstances which led to admission to hospital in Service and civilian life were not at first understood; but, even allowing for this, the medical profession had not recognized the extent to which dyspepsia had increased among males during the last 20 years, and believed that the influx was purely a Service development.

Two suggestions early and repeatedly made were, first, that the cases diagnosed as peptic ulcer were not in fact ulcers; and, secondly, that the prevalence of dyspepsia was due to poor cooking in the Army. Newman and Payne (1940), working under a grant from the Royal College of Physicians, established two facts: first, that the cases so diagnosed were in general definitely ulcers; and, secondly, that nearly 90% of the cases, both ulcer and non-ulcer, had a long history of similar symptoms in civilian life. They were of the opinion that Army cooking, and especially the greasiness of the food, was a factor in causing the early breakdown and recurrence of symptoms in the Army. A large proportion of the Army at that period consisted of reservists, many of whom had been several years in civilian life, and it was anticipated that as these were weeded out the incidence of dyspepsia would fall, especially if Army cooking improved. Events have disproved these anticipations. Army cooking had many difficulties to face in early days, but it has long since been of a satisfactory standard, and the number of reservists has fallen to a small fraction of the present Army. Nevertheless, the flow of both ulcer and non-ulcer dyspepsia continued.

In the last war neither peptic ulcer nor dyspepsia of other types formed a problem of any magnitude, and indeed the rarity of peptic ulcer was definitely noted and duodenal ulcer is not even mentioned in the *Medical History of the War*. So far as Army diet and cooking are concerned, there is no reason to suppose that they were better than in the present war. The relative incidence in the two wars can be judged by the following figures. In the last war up to the end of 1915 (*Medical History of the War*, 1931) the discharges from the Army for "inflammation and ulceration of the stomach" were 709. In the present war the number discharged for peptic ulcer to Dec., 1941, was 23,574.

In order to obtain a picture of the present position of peptic ulcer in the Army 800 Army medical cards (A.F.I. 1220) have been analysed; they were taken at random from the first four months of 1942 (Table I). These come from all parts of Britain, but not from over-seas.

TABLE I.—*Analysis of 800 Army Medical Cards of Peptic Ulcer (Random Selection from Military Hospitals in Britain: Early 1942)*

Onset of Symptoms	Total				Under 40 Years				Average Age		Duration of Symptom	
	Cases	Simple	Haemorrhage	Perforation	Cases	Simple	Haemorrhage	Perforation				
									Yrs.	Mths.	Yrs.	Mths.
Gastric ulcer:												
Civilian ..	105	98	3	4	92	85	3	4	32	7	7	4
Service ..	39	24	4	11	33	20	4	9	31	5	–	7
Total ..	144	122	7	15	125	105	7	13	32	0	5	6
Duodenal ulcer:												
Civilian ..	543	519	14	10	472	451	14	7	32	2	6	6
Service ..	113	96	5	12	100	85	5	10	30	6	1	
Total ..	656	615	19	22	572	536	19	17	31	11	5	7
Total peptic ulcer:												
Civilian ..	648	617	17	14	564	536	17	11				
Service ..	152	120	9	23	133	105	9	19				
Total ..	800	737	26	37	697	641	26	30				

Onset in Civilian Life and in the Army.—In 81% symptoms began in civilian life. In 19% symptoms began in the Army after the outbreak of war, the average length of war service in this group being two years, the age 30 years 9 months, and the duration of symptoms 9 months. These records for the Army and the records for St. Thomas's Hospital 1933-6 have both been analysed for men under 40 years of age to ascertain in what proportion the duration of symptoms was less than 3 years, corresponding roughly to the maximum of war service. For the Army the proportion was 26% and for St. Thomas's 35% (Army, 148 out of 553; S.T.H., 49 out of 140). These records are not contemporary, but, so far as the figures are of value, they are against any undue development of peptic ulcer during war service. Unfortunately there are no data on which one may decide if the Army incidence is higher or lower than would develop in civilian life as distinct from hospital admissions in the same age group and in the same length of time. For gastric ulcer the onset in civilian life is 73%, the previous duration of symptoms 5 years 6 months, and the average age on admission 32 years. For duodenal ulcer the onset in civilian life is 82%, the previous duration of symptoms 5 years 7 months, and the average age on admission 31 years 11 months.

Site of Gastric Ulcer.—Of 118 cases (omitting admissions for perforation and haemorrhage) the ulcer was on the lesser curvature in 90 with a previous duration of symptoms of 6 years 1 month and age on admission of 32¾ years, and at the pylorus in 28 with a previous duration of 5¾ years and age of 29¾. It is possible that pyloric ulcers early tend to produce symptoms.

The main supply of peptic ulcer in the Army is still the recurrence of symptoms which started in civilian life. The position is similar for non-ulcer dyspepsia.

Relative Incidence of Gastric and Duodenal Ulcer

The following data bear on their relative incidence in the Army:

	G.U.	D.U.	Ratio D.U. to G.U.
1. Discharges from the Army for peptic ulcer for a considerable period in later months in 1941	1,088	4,000	3·6 : 1
2. Discharges of men from hospitals over a period in 1941	453	1,194	2·6 : 1
3. Discharges from the Army during the same period as No. 2	460	1,620	3·5 : 1
4. Discharges of men from hospitals over a partly different period	1,176	2,431	2·1 : 1
5. Analysis of 800 A.F.I.1220 diagnoses on discharge from hospitals (early 1942)	144	656	4·6 : 1
6. Analysis of 2,500 discharges for all forms of dyspepsia from a few selected hospitals (1940) (Tidy, 1941)	230	812	3·5 : 1

Nos. 1, 2, 3, and 4 are from official returns of the Army Medical Statistical Department. No. 5 is from my analysis of 800 medical cards taken at random and supplied by the Statistical Department. No. 6 is from returns of a number of hospitals which I collected for the discussion at the Royal Society of Medicine. There is a definite discrepancy in the ratios of these data. Of the 800 cases analysed for No. 5, the ratio of gastric to duodenal ulcer was 1 to 5.2 with onset in civilian life and 1 to 2.9 with onset in the Army (Table I)—that is, with the shorter duration of symptoms—and the ratio thus will vary with the relative proportion of the two groups. The proportion of duodenal ulcer was higher between 20 and 30 than between 30 and 40 years, the ratios for a series being: between 20 and 30 years 1 to 5.7, between 30 and 40 years 1 to 4.6, and over 40 years 1 to 4.3. The proportion of duodenal ulcer was also higher when the previous duration was over 3 years than when it was under 3 years, the respective ratios being 1 to 5.4 and 1 to 4. During the same period as No. 2 the discharges from the Army were gastric ulcer 460 and duodenal ulcer 1,620, a ratio of 1 to 3.5, and the numbers previous to and following this period are similar.

It is possible that the discrepancy between Nos. 2 and 3 is partly due to diagnoses made by radiography on men seen as out-patients at hospitals. This would suggest that the diagnosis of duodenal ulcer is readily made on out-patients but not the diagnosis of gastric ulcer, which is certainly more difficult. It is not easy to supply a satisfactory explanation.

The figures given for discharges from the Army (No. 1) are probably the best guide to the general relative incidence, as the numbers are large, include the whole Army at home, and are the most carefully authenticated. Discharges of officers alone give the same ratio—viz., 3.7 to 1. The Army is partly a selected personnel in relation to peptic ulcer, since many cases are rejected by the medical boards.

Liability to Relapses and Recurrences from Peptic Ulcer in the Army

When the question of peptic ulcer in the Army originally came under consideration the opinions were often expressed, first, that ulcers formed rapidly in the Army, and, secondly, that relapses and recurrences were more frequent than in civilian life. It has already been shown that the evidence is against the first statement. With regard to relapses and recurrences, it must be borne in mind that a man in the Army with peptic ulcer who develops even mild symptoms will almost inevitably reach hospital. Admissions to hospital in the Army which count as recurrences are paralleled in civilian life by periods off duty for sickness in a large industrial concern rather than by admissions to hospital. The study of peptic ulcer among employees of the Post Office by Bashford and Scott (1935) showed the frequency of such absences even at a period when peptic ulcer was less common than nowadays.

It is probable that a man with peptic ulcer in the Services is most affected not by irregularity of the times of the principal meals, or even, within limits, by the diet, but by difficulty in obtaining food at short intervals and directly he feels that he requires it. I believe that an additional factor is that physical fitness and healthy exercise engender a large appetite. One hears from a man who knew that he had had an ulcer, and was anxious to carry on in spite of some recurrence of symptoms, that he would eat an amount at dinner which he would not think of taking in civilian life, and cover it with a liberal supply of sauce. This explains the frequency of vomiting, often at the end or, distressingly, even before the end of dinner.

Relapses in the Army will probably occur more readily than in many civilian occupations, but the incidence in the Army as compared with civilian life cannot be measured by admissions to hospital or the number of discharges from the Service. A modern investigation on the lines of Bashford and Scott's (1935) study of Post Office employees would possibly afford the best guide to the relative frequency of recurrence in the Army and civilian life.

Disposal of Cases of Peptic Ulcer

The policy of the Army is to invalid from the Service all men with the accepted diagnosis of peptic ulcer, with exceptions in the case of key men. In the early period of the war certain hospitals returned cases to ordinary duty after treatment, and this consistently proved unsuccessful. The number of cases is so large that many suggestions have been made for retaining men in the Service in some suitable role, varying from special "ulcer battalions" to "light duty"—a form of duty which, when prolonged, results usually in a negligible output. It is the experience of industry that subjects of peptic ulcer are frequently absent for sickness even when the inducement is to remain at work and the occupation allows some latitude in routine.

The Army would need to arrange not only special diet for an ulcer unit but also a special routine for times of meals—more difficult, and in my opinion equally important—and the unit would need to be undisturbed by a high rate of sickness. For if a man with an accepted ulcer reported sick with a statement of recurrence of symptoms the M.O. could rarely avoid sending him off duty. No existing unit or category in the Army meets these requirements on a large scale, and it may be doubted if any formation would pay a dividend, but conditions may be different in other Services.

Accurate diagnosis is important, for a diagnosis of peptic ulcer, once accepted, is permanent. The diagnosis nowadays rests too largely on the opinion of radiologists, not all of whom have had enough experience of the alimentary canal; and, further, a doubtful radiological opinion is not infrequently accepted as conclusive by a physician who is himself doubtful on clinical grounds. I believe that at times cases which are at least doubtful both radiologically and clinically are being given the definite diagnosis of peptic ulcer.

The position must not be regarded too strictly from the point of view of a gastric specialist. The essential duty of a medical board is to decide if a man will make a "useful soldier" in any category, and the Board must in general be guided by the reports before it. It can decide more easily when the diagnosis is within the covers of the officially accepted *Nomenclature of Diseases* of the Royal College of Physicians, which was designed for a different purpose, but it hesitates to discharge a man for "chronic dyspepsia, no organic changes" or "query peptic ulcer." The medical officer who is satisfied that such a man is useless as a soldier inclines towards a definite diagnosis of "peptic ulcer" or, with the necessary assistance of a psychiatrist, "psychoneurosis." I do not believe that the Army is thus losing many useful men because of gastric disabilities, though a certain number are spoilt by excessive investigation, attention, and treatment in hospitals. The position with regard to statistics is more intricate, and the figures for duodenal ulcer and for gastric neurosis should be accepted with some caution.

Incidence of Complications

The rarity of complications of peptic ulcer in the Army has aroused comment. It is a question if this is not more apparent than real. There are several factors which can make for an apparent rarity. First, the large number of admissions of ulcer cases for slight disturbances reduces the proportion of complications and gives an appearance of rarity. Such admissions occur especially among old-standing cases, and the returns from St. Thomas's Hospital show that complications are less frequent when the previous history is over three years than in recent cases. Secondly, 86% of Army admissions are under 40 years of age, an age group in which deaths from complications are rare.

Figures of complications for St. Thomas's Hospital and the Army are placed together in Table II. Perforations compared

TABLE II.—*Frequency of Complications (Under 40 Years)*

Onset of Symptoms	Total Cases	Perforations		Haemorrhages		Deaths
		Cases	%	Cases	%	
Army: From 800 Army Medical Ca ds of Peptic Ulcer						
Before joining	564	11	2	17	3	1 (haemorrhage)
After joining	133	19	14	9	7	2 (perforation)
Total ..	697	30	4	26	4	3
St. Thomas's Hospital: 1933–6. Males						
Over 3 years	104	18	17	7	7	2 (perforation)
Under 3 years	104	29	28	12	12	2 ,,
Total ..	208	47	23	19	9	4

with cases admitted are 23% for St. Thomas's and 4% for the Army. The difference may depend partly on the standard for admission of cases, which will affect the percentages, and partly on selection by the recruiting boards, since the difference in incidence is most pronounced in cases with a short history. In comparison with perforations, haemorrhages are higher in the Army than for St. Thomas's Hospital, but in the latter an admission is recorded as haemorrhage only when this is of considerable severity, and the same standard is not necessarily employed in Army diagnosis. It is clear that these two sets of figures are not comparable.

It is not impossible that the Army figures give the more correct picture of the incidence of perforation among peptic ulcer in this age-and-sex group of the population than the records of admissions to St. Thomas's, even though a number of cases of established ulcer have previously been eliminated by the medical examining boards.

Perforation of an ulcer, as is well known, may take place without previous symptoms, but in reading through the notes of cases at St. Thomas's Hospital one is struck by the number of instances in which there is a history of severe gastric symptoms for a few days or a week or so preceding the catastrophe and shock of perforation, either as a new development or with a previous history of ulcer or dyspepsia. In the Army, men would be in hospital before the intervening period elapsed, and perforation may thus be saved in a certain number of cases.

Deaths from Perforation.—The analyses of perforations at St. Thomas's Hospital have shown that the case mortality for perforations varies greatly with the age, especially for gastric ulcer. For gastric ulcer the case mortality over and under 40 years is respectively 35% and 5%, and for duodenal ulcer 19% and 14%. In the series of 800 Army medical cards there were 13 perforations with no deaths ascribed to gastric ulcer among 125 admissions under 40 years, and 17 perforations with two deaths ascribed to duodenal ulcer among 572 admissions.

Haemorrhage.—From the 800 Army medical cards, 26 men appear to have been admitted specifically for haemorrhage, with one death. All were under 40 years. Without wishing to stress the fact, it may be mentioned that the death occurred in the only instance in which operation was undertaken for the direct purpose of checking haemorrhage. The bleeding-point was found and successfully ligatured, and the operation satisfactorily concluded, but the patient died from pulmonary thrombosis.

It is probable that the incidence of perforation and haemorrhage in peptic ulcer in the Army is about the same as in a similar group of a civilian population, perhaps with some reduction owing to earlier admission to hospital. It is possible to make a rough comparison of deaths from perforation in the Army and in the civil population from the following data:

1. Registrar-General's Returns of Deaths. In 1938 the death rate per million living from peptic ulcer of males between ages 20 and 39 years was 22.

2. St. Thomas's Hospital statistics ascribe 50% of deaths in hospital in this group to perforation.

3. For the Army, data exist for the ration strength, the proportion under 40 years of age, the number of discharges from hospital for peptic ulcer in a year, and the deaths from perforation in a random sample.

The data from the Army cannot be given, and the number of deaths from perforation is too small to be reliable, but the figures available suggest that deaths from perforation in the Forces are about 75% of the expected number. This figure cannot be considered as more than an approximation, but for what it is worth it suggests that rarity of perforation is more apparent than real.

Other Complications, etc.—Among 144 cases of gastric ulcer there were 2 cases of previous perforation and 2 in which gastrectomy had been performed. Among 656 cases of duodenal ulcers there were 30 cases of previous perforation and 13 in which gastro-enterostomy had been performed. Two cases were admitted with pyloric obstruction and 4 with duodenal diverticula.

Dyspepsia among A.T.S. Personnel

The number of cases of dyspepsia, organic and non-organic, among A.T.S. personnel has been so small that no elaborate analysis would be of value. The comparative incidence of dyspepsia among males and females in the Army can be calculated as follows: the equivalent annual ratio per thousand is calculated from the number of hospital admissions and the ration strength separately for the male personnel and A.T.S. personnel. The comparison of these two values, which cannot be recorded, gives a ratio of males to females of 4 to 1. The ratio of males to females under 40 years in admissions to St. Thomas's Hospital for the period 1933-6 was 5 to 1, the distribution of the population of London between the sexes being approximately equal. As the ratio of the sexes in this period was the same for gastric ulcer and duodenal ulcer the ratios in other areas are less likely to vary greatly from this figure.

The close agreement between the ratios for St. Thomas's and for the Army indicates that the incidence in the two sexes is the same in the Army as in civilian life. For non-organic dyspepsia the ratio of male to female in the Army on the same basis is 2.2 to 1.

Summary and Conclusions

The incidence of dyspepsia of all types in the war of 1914-18 was low.

The prevalence of dyspepsia, organic and non-organic, in the Army in the present war is a reflex of its incidence in the civilian population, which has greatly increased in the last 20 years.

There is no evidence of undue development of fresh cases of peptic ulcer in the Army.

Of admissions to hospital for peptic ulcer in 1942, the onset occurred in civilian life in 81%—73% for gastric ulcer and 82% for duodenal ulcer. Of admissions for non-peptic ulcer, the onset occurred in civilian life in 75%.

The number admitted to hospital for minor symptoms in the Army gives an exaggerated picture of the prevalence compared with civilians.

Symptoms due to pre-existing peptic ulcer tend to recur in the Army owing to unavoidable routine, and will do so under the best conditions of diet and cooking.

Of admissions to hospital for dyspepsia, peptic ulcer formed 58% and non-ulcer dyspepsia 42%.

The ratio gastric ulcer to duodenal ulcer varies in different series, but is probably about 1 to 3.6. The proportion of duodenal ulcer is higher in the age group 20-30 than in 30-40 years (which agrees with the results at St. Thomas's Hospital), and higher with a previous duration over 3 than under 3 years.

The average age of 656 cases of duodenal ulcer was 31 years 11 months, and previous duration of symptoms 5 years 7 months. Of 144 cases of gastric ulcer the age was 32 years and duration

5¼ years. Of 118 cases of gastric ulcer, 90 were on the lesser curvature, the age being 32¾ years and duration 6 years 1 month; and 28 at the pylorus, the age being 29¾ and duration 5¾ years.

Men suffering from peptic ulcer are not suitable for Army life under present conditions.

Men suffering from non-organic dyspepsia can in many cases make useful soldiers provided they are not detained too long in hospital. Cure of symptoms should not be attempted. An excess of medical attention and investigation results in exaggeration of symptoms and repeated admission to hospital.

Complications are rare in the Army compared with the incidence among admissions of the same age-and-sex groups in civilian hospitals, but the rarity is more apparent than real. It is probable that the incidence in the Army is a truer reflex of the incidence in the population than is afforded by civilian hospital admissions.

The low mortality from perforation and haemorrhage is similar to that in civilian males under 40 years of age.

The comparative incidence of dyspepsia between the two sexes in the Army is similar to that among civilians.

I am indebted to Lieut.-Gen. Sir A. Hood, K.C.B., Director-General of Army Medical Services, for permission to make use of Army statistics, and to Major C. Cassidy, R.A.M.C., and Sergeant Stalbow, R.A.M.C., of the Army Medical Statistical Department, for much assistance with the records.

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LEVELS OF VITAMIN A AND C NUTRITION IN GLOSSOP SCHOOL-CHILDREN AND EFFECT OF DEFICIENCIES ON THEIR PHYSICAL CONDITION

(PRELIMINARY COMMUNICATION)

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During the period Oct., 1941, to July, 1942 (37 weeks), the effects on the physical condition of feeding supplementary vitamin preparations to the school-children of Glossop had been investigated under a scheme devised by the Ministry of Health, and consequently we took the opportunity of using these same children in order to estimate the state of their vitamin A and C nutrition and the effects of any deficiencies on their physical condition. About 400 children, aged 9 to 14 years, were involved—200 having the vitamin capsules, and 200 not receiving supplementary vitamins acting as controls; the former group (hereafter called the "vitamin group") received daily doses of 4,000 I.U. of vitamin A, 350 I.U. of vitamin B complex, 1,000 I.U. of vitamin C, 600 I.U. of vitamin D, 2 mg. of riboflavin, and 20 mg. of nicotinamide five times weekly; the latter group (hereafter called the "control group") received capsules not containing any vitamins. The present report is a preliminary consideration of the period 1941-2.

I. LEVEL OF VITAMIN C IN GLOSSOP SCHOOL-CHILDREN

Methods Employed

(*a*) *The saturation test* employed follows the method of Harris and Abbasy (1937). Test doses of 11 mg. per kg. of body weight were given in the morning, and the urine was collected during the fifth and sixth hours, acidified, and titrated against dichlorphenolindophenol. The advantage of this method is its simplicity, especially if one is concerned with school-children, as in our case. Harris (1942) has dealt extensively with the criticisms of this method.

(*b*) *Estimation of the Vitamin in Blood.*—As a supplementary to the saturation test and as an essential to Part III of this paper, blood vitamin C estimations were regarded as necessary. The analysis was done on whole blood, following the method of v. Eekelen (1937) with the use of mercury acetate and hydrogen sulphide. Our findings are in agreement with those of Heinemann (1941), who discussed the value of this method fully. We do not consider it to be less informative than the method employed by Butler and Cushman (1940), who determined the ascorbic acid content of whole blood colorimetrically. In our opinion these methods are the most reliable indication of the vitamin C level in an individual. Measurable amounts of ascorbic acid are found in whole blood after the plasma level has become zero, and the fluctuation of the plasma values also influences considerably the reading in normal and saturated persons (Portnoy and Wilkinson, 1938). Analysis of the white-cell and platelet layer was carried out when severe deficiency was suspected, since the white-cell layer provides evidence of deficiency only and not of good nutrition. In the case of a deficiency, however, it has the advantage over whole-blood estimations that the results are independent of the plasma fluctuations, and the ascorbic acid appears to be retained longer in that layer than in other blood constituents. In following this routine, when sufficient blood was available, we estimated the content of the white-cell layer in cases of severe deficiency as indicated by a blood vitamin C estimation below 0.3 mg./100 ml.

(*c*) *Inquiry into the Dietary Intake.*—A comprehensive dietary survey covering a period of three weeks was made on the families whose children were concerned in this study. The parents kept an accurate daily record, on printed forms, of all the food used during this period, both purchased and grown in their own allotments. They were interviewed by us at the beginning and end of this period, so that the reports obtained may be regarded as reliable. We also estimated the amount of ascorbic acid and calculated the nutrients contained in the school meals during this time, thus obtaining a very detailed evidence of the dietary intake of the children. Under this heading our findings are given with regard to the vitamin C intake.

Procedure and Results

Since the combined investigations carried out on the school-children by the Ministry of Health and ourselves were of a very complex nature, and the tests were not allowed to interfere with each other, we had to choose what, in our opinion, were the most suitable methods available. Therefore, in Jan.–Feb., 1942 (three months after the beginning of the test period), all the 400 children were given two test doses of ascorbic acid and no more. This enabled us to assess the amount of non-saturation present at that time. The children in the vitamin group (200) had by then received 3,000 mg. each on an average. They were all found to be saturated, as indicated by an urinary excretion of 0.8 mg. or over per kg. of body weight.

The control group (200) showed non-saturation in 72% of cases (145). Half of this number (71; 35%) showed no increase whatsoever, whereas the remaining 37% (74) excreted 0.3 to 0.7 mg. per kg. during the test period. The tests were continued in June, 1942 (at the end of the test period), with the object of ascertaining the severity of the deficiency. We assumed that those who in January and February had responded to the test doses with either saturation or increased excretion were not likely to be severely deficient in June. We therefore continued the tests with only the 35% of the boys who had shown no increased excretion at all. Samples of their blood were examined, and they were given test doses until full saturation was achieved. Out of these 71 boys 58 were found to be in a very deficient state—i.e., 36 having a blood value below 0.3 mg./100 ml. and requiring 5 to 7 test doses before saturation was attained, the remaining 22 a value between 0.3 and 0.5 mg./100 ml. and requiring 4 to 6 test doses for saturation. There is admittedly a good chance that some of the remaining subjects who were not investigated in June had become deficient, but their deficiency is not likely to be as

high as that of those examined. We analysed the white-cell layer in 11 cases of severe deficiency; the results obtained ranged from 3.5 to 11.3 mg./100 ml.

The dietary intake of vitamin C was calculated. Only 25% of the cases investigated showed a daily intake of over 30 mg.; 35% showed between 15 and 30 mg., and the remaining 40% under 15 mg. It must be emphasized that these figures are concerned with the period April–July only, but certainly this represents an extremely low intake.

Summary of Results

The extent of non-saturation was 72% in the control group. In the vitamin group all subjects were found to be saturated three months after the beginning of the test period. The most severe cases (58 in all) out of a group of 200 showed the following: 36 below 0.3 mg./100 ml. blood and requiring 5 to 7 test doses for saturation, 22 between 0.3 and 0.5 mg./100 ml., and requiring 4 to 6 test doses for saturation. For reasons explained in the text, it will be seen that the latter figure of 22 is probably higher. The vitamin C intake in the diet from April to June was under 15 mg. daily in 40% and between 15 and 30 mg. in 35% of all cases.

Although the level of vitamin C nutrition varied on the whole according to the social standard, there was a relatively large amount of severe deficiency present. Glossop children compared very badly with some school-children in other areas in which similar investigations have been carried out.

II. LEVEL OF VITAMIN A NUTRITION

The purpose of this part of the investigation was, first, to obtain some more evidence about the value of the dark-adaptation test; secondly, to discover if there was any correlation between the dark-adaptation test and the dietary intake; and, finally, to determine the incidence and degree of vitamin A deficiency in Glossop.

Methods and Procedure

(*a*) *The Dark-adaptation Test.*—The apparatus used was that described by Yudkin (1941a). As test object horizontal and vertical devices only were used, which were considered sufficient to exclude "guessing." When using these lines rather than the direction of arrows we obtained more constant and somewhat lower thresholds. We chose for our readings two parts of the curve—i.e., the final rod threshold and a field in the macular part of the curve. The former was determined after the subjects had been in complete darkness for at least 30 minutes. The latter we obtained by measuring the time required to attain a value of 6.5 $\mu\mu$l (logarithm of the threshold intensities expressed in micro-microlamberts) after an illumination of two minutes. As Dow and Steven (1941) have pointed out, this "recovery-time" test has many disadvantages as compared with the determination of the rod plateau; therefore reliance was placed only on "significant" changes in the cone values if they agreed with corresponding final rod changes. Although this occurred in over half of the cases, we are not of the opinion that any accuracy is gained by employing cone readings.

Our criterion of vitamin A deficiency, as indicated by the dark-adaptation test, was a vitamin A lability of the final rod plateau, as proposed by Steven and Wald (1941). The "control range" was determined in over 900 school-children after adequate supplementation with vitamin A. In 98% of cases the values obtained ranged from 2.8 to 3.4 log units. The remaining 2%, above 3.4 log units, were found to show a gradual slope when the percentage was plotted against the final threshold. The term "normal range," which appears so many times in the literature, has in most cases been employed incorrectly, and, in any case, is rather confusing. The process of dark-adaptation depends on many subjective factors, in connexion with perception and interpretation of visual stimuli, besides the various factors influencing light transmission. An assessment, therefore, of a borderline between "normal" and "subnormal" is futile unless limited to the object for which the test is being used. Since the determination of "normal" and "subnormal" thresholds is of no advantage for the purpose of testing for vitamin A deficiency, no attempt has been made to define these values. All that is required is to determine the individual variation and the "control" range, with special regard to its lower values. These findings will indicate the number of subjects within the lower limits of the control range who are not likely to improve above the individual variation and therefore can be eliminated from further tests. All the other subjects must be given vitamin A treatment if deficient cases are not to be missed.

The variation of an individual was found to be 0.1 to 0.2 log unit during the same day and 0.1 to 0.4 unit over a period of 14 days. The latter high variation—values of 0.4 occurring in 20 out of 900 cases—must be taken into consideration when vitamin A therapy is given over a period of several days and when the significance of changes due to this therapy is being assessed. In the light of these variations all the subjects found to have initial rod plateaux of 3.1 $\mu\mu$l or over were subjected to vitamin A therapy after having had three tests in all.

Following the recommendation of Yudkin (1941b) the tested subjects were given at least 1,000,000 I.U. of vitamin A before the final tests were carried out, and the latter were performed 24 hours after a dose of 100,000 I.U. so that at least transient improvement would occur. The same conditions obtained in the determination of the "control range."

(*b*) *Calculation of the Dietary Intake.*—As part of our food survey the vitamin A intake of the test subjects was calculated. The method of this investigation is described elsewhere.

It should be added that the estimation of vitamin A in blood could not be made. Although our experiments did not show that the concentration of vitamin A in blood could be indicative of vitamin A deficiency, the comparison of the blood values with the results found by means of the dark-adaptation test and the dietary intake would have been of great value. However, taking blood from 400 children was impracticable.

Results

Adaptometer Readings.—(*a*) Comparison of adaptometer readings between the vitamin group and the control group before vitamin A therapy showed that the mean rod plateau was slightly but not significantly higher in the "control" group. (*b*) The following decreases in threshold were found after vitamin A therapy:

	0.5 Log Unit or Over	0.4 Log Unit	0.3 Log Unit
Vitamin group (200) ..	0 (0%)	3 (1·5%)	22 (11%)
Control group (200) ..	33 (16%)	14 (7%)	28 (15%)

Dietary Intake.—The intake was calculated in I.U. per kg. of body weight, and is given in percentages of the test population:

I.U. per kg.	%
Less than 20	7
20 - 30	20
30 - 40	16
40 - 50	12
Over 50	45

Correlation of the Dark-adaptation Test and Dietary Intake.—The only definite correlation observed was that the subjects with a threshold lability of 0.5 log unit or over were in all but three cases found to have an intake of less than 30 I.U. per kg. The exceptions had an intake of 33, 48, and 60 I.U. per kg. respectively. Various subjects with a threshold lability of 0.4 log unit and many subjects with a lability of 0.3 log unit showed a really high intake. Also many cases with a very low dietary intake showed a vitamin-A-stable threshold.

Conclusions

The following conclusions may be drawn from our experiments:

1. *Criticism of the Dark-adaptation Test.*—Certain weaknesses are apparent: (i) A test based upon subjective evidence is not very satisfactory. (ii) The test is cumbersome: in order not to miss deficient cases it is necessary to administer over 1,000,000 I.U. of vitamin A to a large proportion of subjects. (iii) Vitamin-A-labile values of the order of 0.3 and 0.4 log unit can be interpreted either as being the range of individual variation or as being due to a vitamin A deficiency. Since the amount of vitamin A lability is not related to the severity of the deficiency, this is a serious disadvantage. On the other hand, a vitamin A lability of 0.5 log unit or over seems to be a definite indication of a vitamin A deficiency. In spite of the above-mentioned weaknesses, therefore, we regard the criterion of threshold lability as the best test now available for the detection of vitamin A deficiency, with the understanding that a positive result only is reliable and that various readings may be of doubtful diagnostic significance.

Concluding from our results regarding the individual variations and the correlation of the dark-adaptation test and the dietary intake, we regard a threshold lability of 0.5 log unit or over as indicative of vitamin A deficiency, of 0.4 log unit as a probable case of deficiency, and of 0.3 log unit as a possible deficiency.

2. *Incidence and Degree of Vitamin A Deficiency in Glossop.*—By means of the dark-adaptation test we found 16% deficient, 7% probably deficient, and 15% possibly deficient. The dietary intake was less than 20 I.U. per kg. in 7%, 20–30 I.U. per kg. in 20%, and over 50 I.U. per kg. in nearly half the cases.

3. *Vitamin A Requirement.*—A dietary intake of 30 I.U. per kg. and over can perhaps be described as the minimal daily requirement in children aged 9 to 14 to prevent impairment of night vision (as indicated by a threshold lability of 0.5 or over). This does not imply that an intake of less than 30 I.U. necessarily brings on an impaired night vision.

III. EFFECTS OF VITAMIN A AND C DEFICIENCIES ON THE PHYSICAL CONDITION OF THE SCHOOL-CHILDREN

In order to determine the effects of vitamin deficiencies on the physical condition of these children evidence was collected with reference to rate of growth (weight and height), strength, endurance, medical defects, incidence of gingivitis, serum complement titre, incidence of infection, and phosphatase content of plasma. For this purpose the following groups were compared:

Group A.—19–30 boys from the control group with vitamin A deficiency. All the subjects had a threshold lability of 0.5 log unit or over, and their dietary intake was in each case under 30 I.U. per kg.

Group C.—24–36 boys from the control group with severe vitamin C deficiency. All these boys had blood values below 0.3 mg. per 100 ml. and required 5 to 7 test doses for saturation. In 11 cases the vitamin C concentration in the white-cell layer was estimated; the values ranged between 3.5 and 11.3 mg. per 100 ml. Their dietary intake was under 20 mg. in all cases.

Group AC.—14 boys with combined vitamin A and C deficiencies.

Group O.—30–50 boys from the vitamin group. They were shown to be on an adequate vitamin A level and to be saturated with vitamin C. In comparing growth, strength, and endurance it was noticed that there was a difference in initial weight between the A and C groups. It was therefore considered advantageous to have two O groups—one of 36 boys and one of 50 boys, corresponding in weight to the A group and the C group respectively—so that there would be no significant difference in initial weight between the groups compared.

In assessing differences in this inquiry the following formula was used to obtain the statistical "T" figure:

$$T=\frac{\bar{x}_1-\bar{x}_2\times\sqrt{\frac{1}{N}}}{\sqrt{S(x_1^2)-\frac{[Sx_1]^2}{N_1}+S(x_2^2)-\frac{[Sx_2]^2}{N_2}}}$$

Where $\bar{x}_1-\bar{x}_2$ = means; x_1 the one set of variables and x_2 the other set; N_1 = the number of one set of variables and N_2 = the number of the other; S = summation and $\sqrt{\frac{1}{N}}$ = value of $\sqrt{\frac{N_1+N_2}{N_1\times N_2\times(N_1+N_2-2)}}$, to be obtained from tables according to number of variables. (Mr. H. C. Stone, B.Sc., kindly helped to work out some of the data.)

Dietary Intake

Before these groups were compared it was important to calculate their intake of animal protein, vegetable protein, total protein, fat, and carbohydrates in order to discover if there was a significant difference in the dietary intake of the groups which might account for any difference found. This evidence was obtained from the family budgets plus the amount of food received by the children at school (milk and other school meals). It was considered best to calculate the heat value of the food as purchased for the individual families, to deduct 5% for waste in housekeeping, and to add to this amount the school meals, after which the intake per man-value was calculated. The physiologically utilizable portion of nutrients and calories was not calculated, since loss in absorption is equal in both groups. In working out the vitamin content of the diet we used the tables given by Fixsen and Roscoe (1937-8, 1939-40).

Results.—No significant differences were found between the mean values of the protein, carbohydrate, and fat intake in the groups compared. It may be assumed, therefore, that the groups differ only with regard to their vitamin intake in that the vitamin group had the additional capsules whereas the control group lived on the basic diet. The full analysis of the family budgets will be given in a separate report.

Interval.—The interval was 36.7 ± 0.078 weeks.

Ages

Groups	Means	Standard Deviation
O (36)	10·680 ± 0·257	1·543
A (20)	10·970 ± 0·258	1·068
C (24)	11·159 ± 0·172	0·854
AC (14)	11·770 ± 0·358	1·342

There were no significant differences between the groups in age.

Growth

The growth was worked out as percentage gains in 36.7 weeks of the test:

1. *Weight*

Groups	Initial Mean Weight in lb.	S.D.	Percentage Mean Gains in lb.	S.D.
O (36) ..	67·35 ± 1·358	8·149	5·890 ± 0·550	3·300
A (20) ..	67·00 ± 2·464	10·750	4·427 ± 0·324	1·649
O (50) ..	73·68 ± 1·897	13·410	6·740 ± 0·574	3·760
C (24) ..	72·24 ± 4·680	12·040	6·676 ± 0·875	4·290
AC (14) ..	73·26 ± 4·820	18·060	5·500 ± 0·895	3·148

There was a significant difference (as indicated by the T figure being over 2) between O (36) and A (20)—in other words, there was a significant difference in percentage gains of weight between the group deficient in vitamin A and the saturated group, the A group gaining significantly less in weight than the O group. No other significant differences were found.

2. *Height*

Groups	Initial Height		Percentage Gains in Height	S.D.
	Initial Mean Height in Ins.	S.D.		
O (36) ..	53·43 ± 0·774	5·864	2·63 ± 0·134	0·807
C (24) ..	54·75 ± 0·878	4·304	2·65 ± 0·185	0·908
A (20) ..	54·65 ± 0·716	3·415	2·49 ± 0·171	0·773
AC (14) ..	55·50 ± 1·020	3·830	2·52 ± 0·303	1·135

There were no significant differences in percentage gains in height, the T figure being under 2.

Endurance (Fatigue-resistance Potential)

The endurance was tested in terms of the time in seconds that the test subjects could hold themselves suspended on a horizontal bar.* The following comparisons are made:

1. *Comparison of Groups Individually at Beginning and End of Test; also Comparison among Groups at Beginning of Test*

Groups	Performance in Seconds		Differences
	Beginning of Test	End of Test	
O (36) ..	116·50	116·2	0·30
O (50) ..	116·06	112·2	3·86
C (24) ..	116·60	92·7	23·90
A (19) ..	127·00	107·4	19·60
AC (14) ..	125·30	91·1	34·20

Result.—The performance of the C and AC groups was significantly worse at the end of the test after 36.7 weeks as compared with the beginning.

2. *Comparison between Groups at End of Test*

Groups Compared	Difference in Seconds on Bar	T Figure
O (36) + C (24)	23·50	3·80
O (50) + C (24)	23·20	2·22
O (36) + A (19)	19·25	1·79
O (50) + A (19)	15·50	1·70
O (36) + AC (14)	34·20	2·79
O (50) + AC (14)	30·30	2·65

There was no significant difference between the groups at the beginning of the test.

* The time represents the fatigue-resistance potential per lb. of body weight as per formula $\frac{1}{2}MV^2\times t$, in which $\frac{1}{2}V^2$ is constant (see Milligan and Lewis-Faning, 1942; Milligan, 1943).

Result.—At the end of the test there were significant differences between the O and C groups and also between the O and AC groups, the performance of the C and AC groups being significantly worse.

3. *Comparison of the Total Fatigue-resistance Potentials between the Groups*

(The F.R.P.-figure = $\frac{1}{2}MV^2 \times t$, and represents the total energy.)

Groups Compared	Differences in Average Percentage Gains or Losses	T Figure
O (36) + C (24)	27·89	3·13
O (50) + C (24)	24·28	2·70
O (36) + A (19)	23·00	2·15
O (36) + AC (14)	29·66	2·38
O (50) + AC (14)	26·10	2·24

Result.—All groups as compared with the O group showed a significant decrease in the total energy figures.

N.B.—With regard to the A group the low rate of gain in weight would partly be responsible for the low energy figure (see elsewhere in paper).

Strength

The strength was tested by pulling on a dynamometer, and the results were worked out as gross pull in pounds divided by body weight.

Result.—No significant differences in strength were found between any of the groups compared.

Effect of Massive Doses of Vitamin C on Physical Efficiency

In dealing with strength and endurance, in addition to the "long-term" effect of vitamin A, a test was made of its "short-term" effect. At the termination of the official test time, massive doses of vitamin C were given to the vitamin-deficient boys; the results were noted by examination before the doses were given and immediately after the children were found to be saturated with the vitamin.

1. *Strength*

	Mean Pull in lb. Before Saturation with Vitamin C	Mean Pull in lb. After Saturation with Vitamin C	T Figure
C cases ..	165·46	180	1·07
AC cases ..	169	172	0·19

2. *Endurance*

	Mean Time on Bar Before Saturation with Vitamin C (Seconds)	Mean Time on Bar After Saturation with Vitamin C (Seconds)	T Figure
C cases ..	88	99	0·88
AC cases ..	94	88	0·43

The massive doses of vitamin C to saturation produced no significant results either in strength or in endurance. The short-term effects of vitamin C appear to be different from the long-term effects.

Incidence of Gingivitis

Method of Examination.—Miss P. Nicholls, L.D.S., kindly compared 36 cases of the C group with 36 cases of the O group at the beginning and the end of the test. Data were taken from the upper and lower incisor regions only. The fact that temporary teeth were retained or premolars erupting in a large number of cases made it necessary to exclude the back portion of the mouth. A detailed statement of the oral condition was made on each examination. The location of the inflammation was noted, also prophylaxis, irregularities, delayed eruption of teeth, cavities, etc. The conditions were classified into acute, subacute, and chronic; and the gums were described as "clear" if no signs of hyperaemia or hyperplasia were observed.

Results

	Groups	Clear	Acute	Subacute	Chronic	Total
Beginning of test (Oct., 1941)	C	7	22	6	1	36
	O	8	20	6	2	36
End of test (July, 1942)	C	16	9	7	4	36
	O	18	13	2	3	36

There was no significant difference in the incidence of gingivitis between the two groups, but it will be noted that the occurrence of gingivitis decreased remarkably in both groups at the end of the test as compared with the beginning.

The Serum Complement Titre

The serum complement has been shown to consist of many fractions, but it is nevertheless interesting to find that it has been reported to have very low values in scurvy. The purpose of this investigation was to discover if there was any decrease in the complement titre in subscorbutic cases.

The estimation of complement is difficult, but one of the best methods is that of Ecker *et al.* (1938), in which the end-point is taken when haemolysis first begins. Dr. F. Stratton kindly estimated these, employing essentially Ecker's method.

The serum complement of the C and O groups (each group consisting of 30 children) was estimated. No significant differences were observed between the two groups, and no substantially low values were found in the deficient group. In view of the immunological importance attached to the complementary property of serum, and the few conditions in which it has been shown to be diminished in titre, these observations indicate that complete exhaustion of the vitamin may be necessary, as in scorbutic conditions, before complement titre is significantly reduced. This should not, however, be taken to indicate that additional therapy with vitamin C is unnecessary in deficient cases, as these observations show nothing concerning the continued sustenance of a high-titre complementary property under continuing unfavourable dietetic conditions and a supervention of infection.

Incidence of Infection

A survey has been made with regard to the incidence of infection in each of the groups. Twenty-five subjects of groups O, A, and C were compared. A list was first obtained of all the boys who had been absent from school for more than two days. Subsequently the children's parents were interviewed and an allowance was made for non-relevant factors such as broken legs, etc.

Results

Groups	Mean Absences	S.D.
O	1·68 ± 1·110	5·550
A	5·96 ± 0·990	4·990
C	4·76 ± 1·265	6·318

A significant difference was found in the incidence of infection both between O and A groups (T = 3.14) and between O and C groups (T = 2.40).

Medical Defects

The assessment of physical defects is not an easy undertaking and allowance must be made for errors, so that it must be frankly said that great accuracy is not possible. There were, however, certain conditions that could be assessed with more confidence than others, such as various skin conditions (acne, boils, other sepsis, chilblains), glands (enlarged tonsillar glands), lungs (cough and rales), and cheilosis. Only these conditions were assessed.

Results.—(1) Examination at beginning of test (Oct., 1941): No significant differences existed between any of the groups compared. (2) Examination in March, 1942: Significantly more defects were found in the A and AC groups as compared with the O group. (3) Examination at end of test (July, 1942): No significant differences were found between any of the groups. Our impression, however, during the examinations in March and July was that the skins of the O group were clearer, smoother, and sleeker than in the other groups. Similar observations were made by Wilkins and Rollason (1937).

Phosphatase Content of Plasma

When taking blood samples of the O and C groups for the determination of the vitamin C content and the complement titre, the estimation of the phosphatase content in the plasma was carried out with a view to detecting early bone changes in cases of avitaminosis. We employed the micromethod described by King *et al.* (1937), which measures the amount of phenol liberated from phenylphosphate when incubated at 37° C.

Result.—There was no significant difference between the two groups, and no substantial increases were noted in the C group.

We wish to thank the head teachers and staff of the Glossop schools, the parents of children, the Health Department staff, and various voluntary technicians for their co-operation, which made this investigation possible. We also are indebted to Messrs. Organon Laboratories, Messrs. Roche Products Ltd., and Messrs. Glaxo Ltd. for generous supplies of the vitamins.

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AGE INCIDENCE AND PROGNOSIS OF EPILEPSY

BY

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In the course of some 20 years' experience of epilepsy in hospital and private practice I have been impressed by the number of cases of epilepsy of unknown origin beginning in middle and later life. While all writers recognize that idiopathic epilepsy may arise at any age, an onset in later life is generally thought to be rare. Organic disease of the brain which may cause epilepsy is commoner in later life, and therefore epilepsy in such patients is more likely to be a symptom of progressive intracranial disease than in children or adolescents. A statement such as the following, taken from the latest edition of Osler's *Medicine* (Christian, 1942), is typical: "It is well always to be suspicious of 'epilepsy' beginning in adult life, *for in a majority of such cases the disease is not epilepsy*" (italics mine).

Some statements, however, are much more dogmatic. For example, Penfield and Erickson (1941), in their recent book, *Epilepsy*, which is a very fine study of the surgical aspects of the problem, lay great stress on the age of onset of fits as a factor in diagnosis, though they are careful to state that idiopathic epilepsy may occur at any age. They say:

"In cases of onset of seizures between 35 and 55, *the most frequent cause is cerebral neoplasm*" (italics mine). "After 55 years the various cerebral lesions produced by abnormality of the cerebral blood vessels become more frequent, though the strong probability of neoplasm must still be remembered." And lastly: "Idiopathic epilepsy comes on in youth, not in early infancy, and not in middle age or old age."

Age of Onset

As such statements did not correspond with my experience, I instituted, with the aid of Flight Lieut. H. G. Miller, formerly medical registrar, and Dr. Frank Robertson, first assistant, an inquiry into the age of onset in my cases, and, secondly, into the cause of attacks in the later age groups.

TABLE I.—*Age of Onset of Epilepsy: Present Investigation*

Age (Years)	Private	Hospital	Total
0–10	50 (22%)	83 (22%)	133 (22%)
11–20	63 (28%)	122 (33%)	185 (31%)
21–30	49 (21%)	82 (22%)	131 (22%)
31–40	28 (12%)	44 (12%)	72 (12%)
Over 40 ..	41 (17%)	40 (11%)	81 (13%)
Total ..	231	371	602

The cases number 602. The private cases cover a period of 18 years, hospital cases 12 years; hospital out-patient records before this time were removed for salvage without my knowledge. No cases seen during the past two years have been included, as insufficient time has elapsed to judge of their outcome. A study of the figures will reveal that there is a general correspondence between the private and hospital groups, and that of the whole series 25% showed the first evidences of epilepsy after the age of 30 and 13% after the age of 40. The group of 81 patients with onset of attacks over the age of 40 were chosen for special follow-up.

Table II shows a comparison with previous records of the age of onset of epilepsy. While all the records show the highest incidence in the second decade, the figures of these eminent observers (Gowers, 1901; Turner, 1907) indicate only 9 to 10% of patients in whom the first fits occurred after the age of 30, as compared with 25% in my series.

TABLE II.—*Age of Onset of Epilepsy: Comparison with Previous Records*

Age (Years)	Gowers (1,450 Cases)	Turner (1,000 Cases)	Nattrass (602 Cases)
0–10	29%	31·3%	22%
11–20	46%	46·7%	31%
21–30	15·7%	12·2%	22%
31–40	6%	5·8%	12%
Over 40 ..	3·3%	4·0%	13%

Results of a Follow-up

Table III summarizes the results of a follow-up of the 81 patients who developed attacks diagnosed as epilepsy with onset after the age of 40, and in whom at the time of initial examination no cause could be found for the attacks.

TABLE III.—*81 Cases diagnosed Epilepsy of Unknown Origin with the First Attack after the Age of 40*

Untraced		24
Deaths		16
Tumour proved 5, probable 2	7	
G.P.I.	1	
Cerebral arteriosclerosis	1	
Heart failure	2	
Air raid	1	
Pancreatic tumour, ? hypoglycaemia	1	
Unknown	3	
Living and traced		41

The number of untraced patients (24) is perhaps not surprising considering the years involved in the inquiry. The 41 patients living and traced were nearly all re-examined; of the few who could not attend adequate information was obtained. The present condition of these 41 patients is indicated in Table IV.

TABLE IV.—*Present Condition of 41 Traced Patients of the Series in Table III*

3 patients have had only 1 fit:
11 years ago, at age 53
7 55
6 43
1 patient had 2 fits at age 47; now aged 54
6 others have had no fits for the past 9 years (2 cases), 8 years (1 case), 5 years (1 case), 2 years (2 cases)
The remainder continue to have fits at very variable intervals

In some cases the frequency of fits remains unchanged, but on the whole there seems a tendency to diminution in the frequency and severity of attacks with the passing years. None of these patients shows any symptom or sign of intracranial tumour. Their general condition on the whole is good; most of them are living almost normal lives and are at work. For example, one patient is the manager of a large branch of an insurance company though he is the subject of major seizures and has very severe myoclonic twitching from time to time between attacks. Another patient had 7 major nocturnal attacks between the ages of 67 and 77, when they ceased. He is now aged 83, and is exceptionally well.

With regard to evidence of cerebral arteriosclerosis, a moderate degree of hypertension is found in a proportion of cases (Table V).

TABLE V.—*Incidence of Hypertension (41 Cases re-examined)*

B.P. in one patient	=	210/120
B.P.	=	190/130
B.P.	=	190/100
B.P.	=	195/95
B.P.	=	180/100 (Attacks ceased since 1935)

Hypertension seems to us to occur in no greater proportion in these patients than in non-epileptic subjects of the same age, and the height of the blood pressure has not been found to

bear any relation to the frequency of fits. Blood pressure in these patients has shown little variation since the onset of their fits. Other evidences of cerebral arteriosclerosis—for example, strokes and mental deterioration—are notably absent. Only one case showed marked mental changes when he first came under observation; this condition improved with the response of the fits to treatment, and the man has been back at work for some years.

Jacksonian Epilepsy

The question arises whether Jacksonian epilepsy is especially suggestive of tumour. Among the total of 81 patients with onset over the age of 40, 7 are known to have had Jacksonian attacks (Table VI). Of these, 6 are dead, the cause being shown.

Table VI.—*Significance of Jacksonian Epilepsy among 81 Patients*

Number known to have Jacksonian attacks	7
Died	6
Cerebral arteriosclerosis	2
G.P.I.	1
Heart failure	2
Unknown cause	1

The mortality rate is probably exceptional, but the point which emerges is that Jacksonian attacks, while revealing the site of the disturbance, give no indication of the nature of the lesion.

Time of Epileptic Attack

A last point of clinical significance is the time of epileptic attacks. Among the 41 surviving patients of the last group the time of attack was: nocturnal only, 13; diurnal only, 16; irregular, 12. The purely nocturnal incidence of attacks has two important advantages: first, such attacks, occurring in bed, are unassociated with danger of injury, and the patient is able to lead an ordinary life by day; secondly, there is a better chance of controlling nocturnal attacks by maximum doses of an anti-epileptic remedy given at night.

Summary and Conclusions

The age of onset of epilepsy is considered in a series of 602 cases.

81 patients in whom epileptic attacks began after the age of 40 were followed up, and the results of the inquiry are recorded.

Making full allowance for errors in diagnosis, it is clear that the majority of these patients who began to have fits after the age of 40 could not be the subjects of cerebral tumour, severe cerebral arteriosclerosis, G.P.I., or other progressive disease. Most of them continue to have epileptic attacks from time to time without other evidences of disease.

These observations provide no contribution towards the aetiology of idiopathic epilepsy, but they suggest some conclusions which may be of practical value: (1) According to my experience idiopathic epilepsy is by no means uncommon in persons of mature years. (2) Though fits may be the first symptom of intracranial tumour it is rare for them to precede all other symptoms and signs by months or years. (3) In the later years of life epilepsy has remarkably little effect on intellectual powers and general health.

I am interested in this matter from the point of view of teaching. I would suggest that students should be advised always to regard epilepsy as a symptom and to search for the cause both in the nervous system and elsewhere; and, secondly, to try to discover the site of the disturbance by careful analysis of the aura or earliest stage of the fit; but that these rules should apply to epilepsy at any age, and we should not stress unduly the incidence of progressive disease as a cause of epilepsy in the later years of life.

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H. Weyler and C. C. Dustin (*New Engl. J. Med.*, 1942, **227**, 785) record their observations on a woman aged 24 who presented paroxysmal auricular tachycardia throughout the latter part of four pregnancies over a period of five years.

THE SCOPE OF PREVENTION IN OPHTHALMOLOGY

BY

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The recent publication by Marshall and Seiler* of their statistical analysis of 3,219 persons certified blind during 1929-35 raises the question of the preventive function of ophthalmology. There is at the present time a total of 74,000 blind persons in England and Wales whose maintenance costs the State £4,500,000 annually, while practically nothing is spent on planned prevention of blindness by improved facilities for treatment, by education of the public, or by research.

Marshall and Seiler's figures bring out certain noteworthy points. First, the seven most important causes of blindness are, in order of occurrence:

Cataract	16.77% of the total examined
Myopia	16.34% " "
Venereal disease	13.95% " "
Uveitis	10.72% " "
Glaucoma	8.69% " "
Congenital anomalies and abiotrophies	7.45% " "
Injuries	6.42% " "

Secondly, although at first sight the first four items would suggest that the greatest amount of blindness occurs in the older age groups and does not therefore carry so great an economic importance, yet actually only half the cases became blind after 50, and in two-thirds of these the underlying cause had started before that age. In view of the longer expectation of life now than formerly, and the increasing average age of the population in general, as well as of workers in responsible positions, it is obvious that most of the causes of blindness begin to operate early enough to constitute a risk of economic importance. Thirdly, the relatively low percentage of blindness from injury appears surprising until we realize two points—namely, that the position of injury in the list of causes varies between 10.3 and 5.8%, according to whether the first eye, the second eye, or both, are involved; also, most severe industrial eye injuries lead to loss of one eye rather than both, only those of great severity such as explosions and head injuries appearing to any extent in statistics of blindness, yet the time lost from injuries short of this order is of great economic importance.

Although, because of the certification of blind persons and the payment of pensions to the blind, statistics are readily available, what we lack is a precise knowledge of the amount of working-time lost and of inefficiency and disability caused by eye injuries and diseases which do not end in blindness but which nevertheless should be, if possible, reduced in number. Even if the condition does end in blindness there is a latent period of illness and steadily increasing disability during which the patient is unable to work. This is brought out by Marshall and Seiler's tables, which show the average times between the onset of the cause of blindness and the actual certification. In some cases it is considerable; for example, in all accidents the difference between the mean age of onset and the mean age of blindness is 3.11 years; in glaucoma it is 2.94, in cataract 5.1, and in inflammatory conditions it is higher still (e.g., trachoma 25.58, and uveitis 12.4), while it is highest in myopia (36.24 years). Quite apart from these figures exists the mass of time lost from accidents which recover and from accidents leading to the loss of one eye only, which never come to certification. As pointed out before, these must be borne in mind as explaining the, at first, surprisingly low figures for blindness as a result of injury, and it is to be emphasized that in any discussion on prevention the non-blinding conditions must be taken into account.

When we consider the list of conditions involved from the point of view of possible reduction of eye disease it becomes obvious that advances could occur mainly in three directions—

* Marshall, John, and Seiler, H. E. (1942). *Brit. J. Ophthal.*, **26**, 337, 385, 434.

namely, by improvement of the ophthalmic services of the country, by education of the public on ophthalmic matters, and by further research into aetiology and therapeutics.

Improvement of the Ophthalmic Services of the Country

From certain of Marshall and Seiler's figures it would appear that some relation exists between the number of blind, especially in the higher age groups, and the hospital facilities of the district. This is to be expected, and could only be countered by making modern ophthalmic hospital treatment equally available for everyone. This would entail geographical planning and co-ordination on a regional basis, together with the provision of a larger number of ophthalmic surgeons than are at present available. Some more standardized system of training for ophthalmologists at recognized centres and a reconsideration of the requisite examination standards would be advisable, as, at present, postgraduate teaching is somewhat haphazard and there is no uniformity of qualifications demanded by hospitals in various parts of the country. Thus the problem is linked with those of regional planning and of medical education. In addition, the vast questions of ophthalmic benefit and the relations between approved societies, ophthalmic surgeons, hospitals, and opticians would also appear to be involved. There is need, too, for a closer supervision and better facilities for diagnosis and treatment of children under school age and of adolescents leaving school but not yet eligible for ophthalmic benefit. At present no provision is made for these groups, and much preventive work might be done on them.

Education of the Public

This is a basic factor in maintaining the national health. One has only to consider the chaos which exists in the public mind on such subjects as the difference between a refractive error and a disease (and, through this, between an optician and an oculist), the value and nature of orthoptic exercises, and the relation between the condition of the eye and the general health, to realize that much could be done by clearing up misconceptions alone. It is well known that many people with glaucoma postpone medical treatment beyond the limit of safety by buying stronger glasses as a makeshift, and that practically all amblyopic eyes in children are due to the belief of parents that the child will outgrow the squint and that young children should not wear glasses. So little is known of the anatomy and physiology of the eye that it is usually difficult to explain to patients such simple problems as the nature of myopia and of cataract. This ignorance paves the way for the development of ocular neuroses and the accompanying vogue for magical or much-advertised systems of treatment. That these are successful in many cases points to the need for a higher standard of diagnosis among ophthalmologists and a higher level of educated co-operation from the patients. Education is needed at three levels. Some biological and physiological instruction in schools should be obligatory; it should include an understanding of the mechanism of sight and the nature of binocular vision and of errors of refraction. In adult life authoritative information should be available on such subjects as the care of the eyes (such as the futility of constant eye baths) and the nature of presbyopia. Most especially, however, instruction is needed on protection of the eyes in industry, since most minor injuries are due to the prevalent attitude towards safety-first measures and to ignorance of the possible effects of such injuries.

Research

The trend of medical research at the present time is towards greater collaboration between experts in different branches of science. Since medicine is largely an art there must be, for progress, close contact with the basic sciences underlying it. Advances in ophthalmology of recent years owe practically everything to basic discoveries in the realms of physics and chemistry—pharmacology and physiology also co-operating. We have only to mention the practical application of the diathermic current and of the cathode ray, the improvement in optical glass and plastics, the synthesis of the sulphonamides, the discovery of the nature of vitamins and their biochemical action, and the researches of psychologists into the visual function to show how closely interlocked with advances in ophthalmology are discoveries in other fields. Too often, however, the ophthalmologist, overburdened with the mass of clinical work confronting him, lacks the requisite contact with the experimental sciences. The establishment of research teams in association with laboratories where physicists, physiologists, biochemists, and pathologists, among others, could unite with ophthalmologists for the solving of given problems would seem to be desirable. For example, to return to Marshall and Seiler's report and the seven most common causes of blindness, we can foresee that the problems of cataract and glaucoma will require the help of biochemistry for their solution and that uveitis must invoke experimentation in pathology, bacteriology, and immunology. Venereal disease is already yielding to chemotherapy, and myopia and the abiotrophies probably require genetical research for their unravelment. The question of injury includes experiments in the design of protective goggles and work on the best psychological approach to ensure their use.

If these desiderata be kept in mind it is possible that when the next survey of the statistical position can be undertaken a distinct improvement may be manifest.

RISE IN POTASSIUM CONCENTRATION IN THE BLOOD STREAM FOLLOWING ISCHAEMIA OF MUSCLE MASSES

BY

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It is well known that the concentration of potassium is much greater in cells than in tissue fluids. Thus Eichelberger (1941) found 25 times as much by weight in dog's muscle (corrected for blood and fat content) as in the serum. This great difference in potassium concentration on the two sides of the cell membrane is maintained only so long as this structure remains undamaged. Prolonged asphyxia is one method of causing such damage. Baetjer (1935) found, by measuring its concentration in the perfusate, that loss of potassium from cat's muscle increased as the rate of blood-flow was reduced, but that the actual excitability of the muscle remained unaltered. Fenn *et al.* (1939) found that there was a limit to the potassium reduction in cat's muscle that could be brought about by perfusion. Later, Fenn, Koenemann, and Sheridan (1940) observed that no increased loss of potassium or production of lactic acid followed periods of asphyxia in perfused frog's legs.

Method of Investigation

The present investigation was undertaken to determine whether or not any appreciable loss of potassium followed periods of asphyxia in the larger muscle masses of human beings. The subjects were patients to whose limbs tourniquets had been applied for periods ranging from 35 to 100 minutes in the course of orthopaedic operations. They were all muscular young adults, mostly men. Blood samples were taken from the antecubital vein just before and at seven minutes after the removal of the tourniquet. From the first few patients additional samples were taken—one at the start of the operation and another one hour after its conclusion; but since the former revealed only the usual slight fall in the concentration of potassium that occurs during the administration of an anaesthetic, and the latter a subsequent return to normal, they were soon discontinued. The clot and serum were separated as soon as possible, and any specimen with a trace of haemolysis was discarded. The potassium was estimated by the cobaltinitrite method of Tisdall and Kramer (1921), using duplicate samples and putting through a standard with each batch. In the later cases inorganic phosphate was determined

as well, applying the phosphomolybdate method of Denigès (1921) to the usual trichloracetic acid filtrate. The results are shown in the accompanying table. The significance of the differences observed was calculated by the method of Fisher (1938), and a value for P of less than 0.01 was found. The rise in the serum potassium is thus statistically significant. Although marked and consistent, the observations upon the serum phosphate are too few for statistical methods to be applied.

Table of Results

Case No.	Duration of Ischaemia (Mins.)	Position of Tourniquet	Serum Potassium			Serum Phosphate		
			Before Removal	7 Mins. Later	Rise	Before Removal	7 Mins. Later	Rise
1	90	Top of thigh	19·5	22·6	3·1	—	—	—
2	50	Below knee	22·2	23·6	1·4	—	—	—
3	80	Half up thigh	21·2	27·6	6·4	—	—	—
4	50	Top of thigh	18·6	21·2	2·6	4·5	5·2	0·7
5	70	Above knee	20·3	20·2	−0·1	—	—	—
6	70	Above knee	18·6	19·2	0·6	—	—	—
7	70	Right arm	16·7	16·5	−0·2	—	—	—
8	45	Below knee	17·4	18·7	1·3	—	—	—
9	100	Above knee	17·1	19·2	2·1	5·4	7·4	2·0
10	90	Half up thigh	19·5	20·0	0·5	3·3	4·0	0·7
11	35	Top of thigh	16·9	18·5	1·6	3·2	3·8	0·6
12	60	Top of thigh	19·7	21·4	1·7	4·3	4·8	0·5

The values for the serum potassium and phosphate are in mg. per 100 c.cm.

Discussion

Houssay *et al.* (1937) found that in chloralosed dogs general asphyxia for from two to four minutes led to an increase in the serum potassium, but that this did not occur after removal of the liver or suprarenal cortex or section of the splanchnic nerves. It is to be assumed, therefore, that the potassium was released from the liver by parasympathetic stimulation. Thus in the present series there are two possible sources of the extra potassium found in the serum. It might have come either from the asphyxiated cells, presumably those of the muscles, or from the liver by the action of a hypothetical substance present in the ischaemic limb and suddenly released into the circulation —such a substance as Blalock (1930) postulated in his experiments on the production of shock. It should be noticed that in only three cases—Nos. 5, 7, and 9—was severe trauma applied to the limb during its period of ischaemia, and that these showed no exceptional rise in serum potassium. The other operations were for the removal of semilunar cartilages, or manipulations of similar severity.

The only feature in common between this series and cases of the "crush syndrome" is the period of ischaemia undergone by the muscles. Recent observations on that condition—e.g., those by Beall, Bywaters, Belsey, and Miles (1941) and by Bywaters and Beall (1941)—have shown that a steady and prolonged rise in the serum potassium occurs. This is possibly due to the concomitant renal failure, and would certainly mask the small and transient change noted here, as also would any marked release of potassium by direct trauma to the muscle cells.

No attempt has been made to find any correlation between the duration of the asphyxia, the weight of muscle involved, and the amount of potassium released. This might shed light on the origin of the potassium, but it cannot be attempted without a larger series than the present. In this connexion it should be noted that if it could be assumed that equilibrium between the blood and the intracellular fluids of the tissues had been reached, every rise of 1 mg. % in the serum potassium would mean that 0.19 g. of the ion had been released into the circulation. The weight of the muscles of the calf and foot is about 1,300 g. (Roessle and Roulet, 1932), while the potassium content is about 0.3% (Gamble *et al.*, 1923; *Tabulae Biologicae*, 1926), so that in Case 9 of the present series the ischaemic muscle would have to give up about 10% of its potassium to account for the whole of the rise observed in the serum.

Summary

A series of observations is reported in which the serum potassium showed a significant rise after the removal of a tourniquet applied to a limb during the course of orthopaedic operations.

The extra potassium in the circulation might have come from the cells in the ischaemic area or from the liver by the action of a hypothetical substance released in the limb.

I have to thank Mr. E. S. Jamieson for the opportunity of making these observations on his cases.

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Medical Memoranda

Manual Dilatation of the Pelvis: Four Further Cases

In 1936 I reported (*British Medical Journal*, **2**, 282) a case in which the pelvic girdle was dilated to avoid the death of the patient in parturition. On that occasion the measure was adopted as one of desperation. The result was gratifying. Since then we have made considerable use of the method as one of election, and experience has been progressively encouraging. I am now able to single out four definite cases in which we feel justified in ascribing to its use the getting of a live undamaged child from an undamaged mother. (We acknowledge its valuable help on other occasions.)

Three cases do not need a separate description. All three (*a*) were primiparae; (*b*) had a minor degree of pelvic contraction which ante-natally justified an expectation of successful delivery (perhaps assisted), given normal opportunity for natural dilatation of the passages and moulding of the head; (*c*) were complicated by early rupture of the membranes; (*d*) required intervention on account of signs of foetal distress; and (*e*) required this intervention at a stage when, although labour was already more or less protracted, the size-relation of the head and passages was unfavourable.

The fourth case was that of a 1-para with marked general contraction, and properly a hospital case; she was a new-comer to the district, and an unexpected call. The membranes ruptured at the onset of labour. A good degree of moulding was allowed. When delivery was undertaken it was necessary to make full use of manipulation.

PURPOSE AND INDICATIONS

The purpose is to minimize damage to the mother, and damage, especially cerebral damage, to the child. It is not meant to replace any current practice, except forceful dragging of a child through unnecessarily narrow passages. It is indicated in proportion to the expectation of difficulty. It would appear to be indicated whenever forceps are used to overcome resistance by the bony passages to the transit of the head, and to be as rational on behalf of the child as completing the dilatation of the soft passages is on behalf of the mother.

In at least some cases of disproportion (particularly with early rupture of the membranes), when the head gets an unfavourable entry at the brim, the disproportion tends up to a certain stage to become worse. Although confident that this can occur I feel that an attempt to analyse the mechanics of the process might bring me into one-sided conflict with the anatomist. The labour may survive this phase successfully; but if for any reason delivery has to be undertaken before the head has become adjusted to the passage, corrective measures should be addressed to the bony as to the soft passages. In the first degree this correction is, in the jargon of the moment, a "de-worsening," but some further stretching of ligaments and easing of joints are almost always attainable with comparative ease and with safety.

TECHNIQUE

The technique is essentially elastic. Leverage must be from bone to bone, and may be done with the finger-tips on one and the knuckles or the back of the hand against another, or with the knuckles on one and the back of the hand against the other. Much depends on the size of the operator's hand and other local conditions. One must ensure that bone *is* underneath the finger-tips, as there is usually some degree of oedema of the soft tissues, and these are easily damaged. Leverage

should be applied only for a second or two at a time, the changes being rung from one pair of points to another. The degree of pressure used is comparable to that used on a joint stiff from disuse—say an elbow which has been immobilized for some weeks. It can be more than this, but should not be much more. Firm stroking across their axis with the pulp of the finger-tip helps to stretch ligaments which are still taut. The gain may not be appreciable during the application of pressure, but becomes clear as one works round and returns, as one repeatedly does, to points already treated. A most useful increase of room for the passage of the head can be obtained without haste and without trauma in two or three minutes. When one feels that the best has been done, the hand already in the vagina guides the blade of the forceps. The anaesthesia is not significantly prolonged.

CONCLUSION

It is submitted that manual dilatation of the bony pelvis can be safely and successfully used to minimize birth trauma; that it is specially indicated in cases of slight disproportion which have to be delivered at an unfavourable stage; and that it constitutes a useful rejoinder to early rupture of the membranes.

Lochmaddy, Isle of North Uist. ALEX J. MACLEOD, M.B., Ch.B.

Treatment of Fusospirillary Balanitis

The aetiology of this type of balanitis was proved by Corbus and Harris in 1909 to be due to the symbiosis of a Gram-negative spirochaete and fusiform bacillus, and the resulting clinical features, described in detail by them, are briefly recapitulated here.

Predisposing factors are a tight prepuce, wetting the prepuce with saliva, and unnatural sexual gratification. About 3 to 4 days after intercourse there is a feeling of irritation under the prepuce, soon followed by the appearance of a copious frothy yellow offensive discharge and superficial ulceration of the glans penis and under-surface of prepuce. Phimosis with inability to retract the prepuce may subsequently occur, but usually only develops after 8 to 14 days in the absence of treatment. The inguinal glands may be slightly enlarged but do not suppurate.

On examination, after retracting the prepuce and removing the pus, small greyish-white patches are found in the preputial area, with erosions on either side of the coronal sulcus. The edges of the ulcerated areas are often circinate in outline. Diagnosis is made by staining a smear of the pus with gentian violet or neutral red—when large numbers of spirochaetes and fusiform bacilli are seen—or, alternatively, by dark-ground illumination. Prevention, apart from circumcision when there is a tight prepuce, consists in the regular cleansing of the preputial area, especially after sexual intercourse. The condition may be treated by frequent bathing with hydrogen peroxide or other mild antiseptic. A preparation of stovarsol as a jelly (containing merfenil 1 : 100,000) has been tried in a series of 38 cases. The advantages of this preparation are several. It is dispensed in a small collapsible tube which can be carried by the patient in his pocket or haversack, and may be applied quickly without mess in the secrecy of the lavatory; it relieves the irritation after the first application, and is rapidly curative. It contains no sulphonamide, and therefore cannot produce sulphonamide sensitization.

In all, 38 cases have been treated with this preparation—32 as out-patients and 6 as in-patients. After washing the glans penis and subpreputial space with saline a small quantity of the ointment is squeezed from the tube and spread gently over the area. The prepuce is drawn forward and any excess wiped off. When the preparation could not be applied direct to the subpreputial areas on account of phimosis the subpreputial space was washed out with saline, and a cotton-wool-tipped probe soaked with the jelly was then passed all around under the prepuce. In most cases the ointment was applied twice daily, but in-patients were treated three times a day. The average number of applications of jelly for all cases was 5.5 (minimum 2; maximum 13) and the average number of days taken for complete healing was 3.5. Several mild infections cleared up in two days. Four cases relapsed, but were cured by further treatment.

I regard this new method of treatment as highly effective, but the independent observations of others are desired.

I wish to thank Dr. R. C. L. Batchelor for permission to study those cases in the Edinburgh Venereal Diseases Department, and to Pharmaceutical Specialities (May and Baker) Ltd. for supplies of stovarsol jelly.

Edinburgh. G. M. THOMSON, M.D., M.R.C.P.Ed., D.P.H.

REFERENCE

Corbus, B. C., and Harris, F. G. (1909). *J. Amer. med. Ass.* **52** 1474.

Reviews

PERMEABILITY OF MEMBRANES

The Permeability of Natural Membranes. By Hugh Davson, D.Sc., and James Frederic Danielli, D.Sc. With a foreword by Prof. E. Newton Harvey. (Pp. 361; illustrated. 25s.) Cambridge: The University Press. 1943.

The subject of the permeability of membranes, and more particularly that of their differential permeability, is one of the most fundamental and important in the whole of biological science. It lies at the root of most of the phenomena of life in animals and in plants of all degrees of organization. The phenomena involved are primarily physico-chemical, and studies of permeability have been made by the most varied methods and upon the most diverse kinds of cells. It is no light task, therefore, to assemble and critically to review and digest the results of the numerous investigations which bear upon the subject of permeability, and to deal with the frequently abstruse physical chemistry which has been directed to the elucidation of the manifold phenomena which have emerged from those studies.

This formidable task has been very well performed by these authors, and they have produced a treatise which should serve as a loadstone for some years to all who wish to enter this perplexing territory. Much of the work discussed concerns the permeability of the red cells, which are obviously well suited for investigation. But it is made clear that what holds good for the erythrocyte cannot necessarily be transferred to other cells, or even from erythrocytes of one species to those of another. Much of this work is that of the authors themselves. The illustrations are clear, the bibliographies comprehensive, and altogether the work is a mine of carefully compiled and well-digested information. Perhaps some of the physico-chemical explanations are a little optimistic; and one would have liked to see more, if more is known, about the permeability of the lung membrane to gases. But the general impression is one of excellence.

UROLOGY IN GENERAL PRACTICE

Urology in General Practice. By Nelse F. Ockerblad, B.S., M.D., F.A.C.S., and Hjalmar E. Carlson, B.S., M.D., F.A.C.S. (Pp. 383; illustrated.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co. 1943.

The preface to this book points out the desirability of stimulating an interest in and knowledge of urology among general practitioners and medical students. It was written for this purpose. Those who read the preface will expect to find something worth while in the pages which follow, and they will not be disappointed. General surgeons who have a leaning towards urology and make it their hobby (which is far better than specialization in the narrow sense) will find in this small volume a fund of practical information presented and illustrated in an attractive manner.

The authors are masters in the art of instruction. The technique of cystoscopy is described adequately in simple language. There is a good summarized account of medical ailments such as nephritis. These references are relevant and are too often omitted from surgical textbooks. The authors believe that doctors "are coming more and more to realize that the urologist knows more about the kidney and the diagnosis of its diseases than anyone else." The chapter on lithiasis is vague and is not quite up to the high standard set in other sections, but any omissions here are counterbalanced by the clear and detailed accounts given of carcinoma of the prostate, sterility, and the use of sulphonamides in urology.

There are 362 pages (excluding the index and preface) with 98 illustrations. In so confined a space some good material of necessity must be omitted. Nevertheless, the doctor who masters the contents of this book, and puts its precepts into practice, will be able to deal in an expert fashion with the majority of urological cases. His knowledge will not be confined to the commonplace, for he will find illustrations of certain rare conditions such as wide dilatation of the lower third of the ureter, without obstruction, probably congenital in origin.

A DICTIONARY OF SKIN DISEASES

Synopsis of Diseases of the Skin. By Richard L. Sutton, M.D., and Richard L. Sutton, jun., M.D. (Pp. 480; illustrated. 28s.) London: Henry Kimpton. 1942.

There is certainly a great deal compressed into a small compass in this volume, which will go conveniently into a not very capacious pocket. The authors remark that it pleases them to observe how much can be said with comparatively few words. The result is that they have produced a book which is more like a dictionary of skin disease than anything else; in fact, we rather fancy that it would be improved if any attempt at classification were abandoned and an alphabetical arrangement were adopted instead. The severe compression of which the authors are proud does not make for easy reading, and for that reason it is hardly suitable as a student's textbook, while as a treatise of a comprehensive character it cannot, of course, compete with the monumental works on dermatology of which the same authors' own production is a notable example. The function of the present volume lies hardly among the medical profession at all, but it would find a distinct sphere of usefulness in the world of journalism. Nowadays disease is news among the general public, and the presence of a work like this in the newspaper office or on the desk of the free-lance journalist for purposes of quick reference would certainly prevent many errors in those who offer to the general reader items of dermatological significance thought sufficiently spicy or dramatic to interest him. The numerous and excellent photographs with which this book is embellished will also be found very helpful.

TESTS FOR COLOUR VISION

The Series of Plates designed as Tests for Colour-Blindness. By Dr. Shinobu Ishihara, Professor of Ophthalmology, Imperial University of Tokyo. Ninth edition (complete edition). (32 plates. £2 10s.) London: H. K. Lewis and Co. 1943.

The deserved popularity of the Ishihara plates used as tests for colour vision has created a demand for this work, which is out of stock in this country and cannot now be obtained from Japan. Messrs. H. K. Lewis and Co. have shown public spirit in obtaining permission from the Patent Office to bring out a facsimile of the original to satisfy the demands of the three Services and of private practitioners, and the Chiswick Press has on the whole carried out satisfactorily a difficult task. In format and execution this facsimile is a close approximation to the original, but it must be stressed that it is only an approximation. Most of the plates in this reproduction are as serviceable as those of the original, even if some of them do not quite catch the exact shade of colouring of the original, but some few fall below standard. Plates 10, 11, 12, and 13 are more difficult to read in the facsimile than in the original, while Plates 16 and 17 are not above criticism. The examiner will have to use this reproduction with discretion if he wishes to avoid unnecessary rejections on the ground of colour blindness.

Notes on Books

Prof. WILLIAM BOYD'S popular *Textbook of Pathology* has appeared in its fourth edition (Henry Kimpton; 48s.), somewhat diminished in size in spite of the introduction of much new matter. This has been achieved by omitting a chapter and several sections on subjects which are dealt with in books of other kinds, and by what the author characteristically describes as a "tightening of the belt of speech." Few medical authors make so telling a use of metaphor, or captivate their readers by presenting their subject in so engaging a style. New and up-to-date information has been introduced on a large number of subjects, among which are several that have only very recently come into prominence, and there are many new illustrations.

The second edition of *Social Service in the Clinic for Venereal Diseases*, by DOROTHY MANCHÉE, is even more welcome than the first because the problems dealt with are more insistent in wartime than in peace, and case-holding and follow-up have assumed a much greater importance since the launching of the anti-V.D. campaign and the introduction of Regulation 33B. The wartime upsets of family life and the direction of female labour into industry have introduced difficulties never dreamed of in peacetime. There can be no doubt that an almoner in every V.D. treatment centre is rapidly becoming a necessity rather than a luxury, and Miss Manchée tells us what such a lady can accomplish. The book is specially recommended to all directors of venereal disease clinics. It is published by Baillière, Tindall and Cox at 5s.

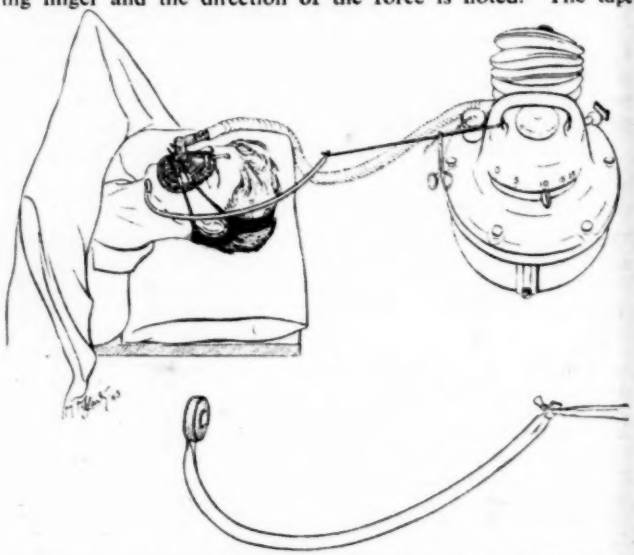
Preparations and Appliances

ANAESTHETIST'S THIRD HAND

Flight Lieut. P. S. A. HEYWORTH, R.A.F.V.R., writes:

Before describing this simple piece of apparatus, shown in the accompanying sketch, it must be emphasized that (1) it may be a dangerous gadget in the hands of the occasional anaesthetist; (2) it was devised for the experienced anaesthetist working under short-handed conditions, and not to relieve him from supporting the jaw during normal times.

The patient is settled so that it is possible to maintain a clear airway by supporting the jaw with a finger under the chin. The cushion of the apparatus is placed under the holding finger and the direction of the force is noted. The tape



is now hooked firmly round a convenient piece of the anaesthetic apparatus and secured with a pair of forceps. If the direction of the pull is inconvenient, the position of the patient's head can, of course, be altered.

The knack of maintaining a clear airway cannot be acquired by brief training. For two years, while working with changing and untrained theatre staff, I have preferred to rely on this apparatus to handing the patient over to an unskilled assistant. It has often eliminated the necessity for an endotracheal tube and has proved invaluable when a blood or plasma transfusion has to be given by the anaesthetist and there is no one free in the theatre to support the patient's jaw. During thyroid surgery it is a pleasant relief to aching fingers if the main pull is taken by this little apparatus.

I wish to thank Air Commodore R. R. Macintosh for his help and criticism, Miss M. C. McLarty for the drawing, and Mr. R. Salt for his help in making the original holder. The instrument can be obtained from Medical and Industrial Equipment, Ltd., 12, New Cavendish Street, London, W.1.

RECENT GLAXO PRODUCTS

Glaxo Laboratories, Ltd., Greenford, Middlesex, are now introducing certain new products.

2:1-diaminoacridine hydrochloride is said to have the lowest toxicity of all the flavines; in dilutions of 1 in 1,000 it has the least effect on living tissues. It is rapidly bactericidal, and in effective concentration does not interfere with healing. It is also effective against certain Gram-negative organisms—*B. proteus*, *B. coli*, and *Ps. pyogenea*—that are not affected by other acridines in similar concentrations.

5-aminoacridine hydrochloride in dilutions of 1 in 1,000 is a non-irritant antiseptic with an antibacterial activity similar to that of other flavines against the common pyogenic organisms. It does not stain the skin and is easily removed by water from fabric.

Nicotinamide, while possessing a similar therapeutic value to nicotinic acid, has the important advantage of not producing the uncomfortable flushing and other skin reactions so common with the acid. "Pelonin" amide, brand of nicotinamide, is available in tablets and in ampoules containing 50 mg.

Suspended T.A.B. Vaccine (synthetic culture medium) Glaxo.—This now replaces their dissolved T.A.B. vaccine because many physicians prefer a suspended type of T.A.B. vaccine. The full antigenic properties of the organisms are retained, while the absence of protein from the culture medium restricts the reaction to that produced by the bacteria themselves.

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BEHAVIOUR AND NEUROSIS

The attempt to reduce psychoneurotic reactions in human beings to terms of conditioned reflexes has been criticized before. There has been an impression in some minds that such a conception is somehow more scientific than one that includes psychological as well as physiological principles. It is therefore of all the more interest to know that in all the years of his investigations of animal behaviour Pavlov was so married to his rigidly mechanistic philosophy that, as is recorded by his pupil Frolow, he would actually impose a fine on any of his assistants who ventured to suggest that the behaviour of experimental animals might be determined largely by physiological needs, aversions, conflicts, or other internal motivations. This is hardly the spirit of science, but the bias persisted to the end of Pavlov's life. It is true that towards the end he began to look at clinical problems, but by that time he approached them inevitably backwards, as it were, with his mental vision fixed upon a picture of cortical processes. Having by then discovered, as he thought, a fundamental physical basis for the genesis and mechanism of neurotic reactions in dogs in terms of excitement and inhibition in parts of the cortex, he sought to explain the social behaviour of human beings in the same terms. He approached the whole in terms of the part and not the part in terms of the whole, which was curiously contrary to the general trend of physiological philosophy in his later years. It did not occur to him to think in terms of the meaning of the stimuli; a bell was a sound, for example, and not something that meant food or nothing, according to whether the animal wanted food or not. A neurosis was merely a conflict between excitatory and inhibitory phases in more or less of the cortex and not a struggle to solve a problem of vital importance to the animal as a whole. Although these criticisms seem more or less obvious, any effort to make them was accompanied by a sense of discomfort, because no experimental control of Pavlov's work had appeared. All the work in conditioned reflexes, or, at any rate, all that part of it that seems relevant, has been done by Pavlov's disciples, who used the same language and the same concepts. Of those signs the dog gave of responding to a stimulus because no food followed, it was said that the "threshold" response was "raised" by the stimulus. Nothing, as Masserman puts it in his recent book,[1] was said about the dog's frustration or even about his hunger.

It is particularly welcome that a book should appear which embodies experimental work on Pavlovian lines but which undertakes it from the aspect of the organism as a whole, taking into account all drives and instincts as well as localized cortical processes, and making the setting of the experiment much less artificial. The animal is not placed in complete isolation and protected from every stimulus except the experimental one. The experiment is not only with a conflict of stimuli. Masserman shows that unless the stimuli are related to the animal's needs no conditioned response can be established. Masserman made experiments also with a conflict of motives—for example, between hunger and fear—and in this way, for the first time, a real parallel was drawn with human problems and failures to solve them. After all, the very fact of the use of the unconditioned stimulus in all Pavlov's work implied a reference to the emotional or instinctive side of life, which was never admitted. The difference in conceptual approach is between a narrow mechanistic and a biological conception. Masserman insists that motivation is an essential basis for even the most elementary Pavlovian experiment. He points out that the reaction is not to a mere stimulus; it occurs only in relation to the total apperceptive field. The dog salivates to the sound of a bell only if the sound has come to mean food and if the dog is hungry. What matters is the significance of the sound and not merely its physical conformation as a wave front impinging on a receiving apparatus. That the linkage is not solely a mechanical one between a cortical disturbance and some sort of local emotional mechanism is suggested by the failure of attempts to link the response to a pure sound stimulus with the effects of direct stimulation of the hypothalamus—e.g., with a "sham rage" reaction. No linkage between sound and rage reaction could be established in this way.

Consistent neglect of the importance of the meaning of a stimulus led Pavlov to postulate inhibition, where, for example, the response becomes extinct from lack of "reinforcement," such as lack of feeding. What really happens in such circumstances is—nothing. The animal has failed to be interested. Pavlov arrived at a specious physiology by neglect of analysis in psychological terms. We are still, as Sherrington said long ago, very far from having a physiological picture of an idea. Masserman's work is important as probably the first criticism of Pavlov's work by means of experiments based on a wider philosophy. By his method he has shown that it is possible to provide experimental analogies at least with emotional conflict in neurosis, with symbolic behaviour, with phobias and, more doubtfully, with regression, as well as with the cure of neuroses by manipulation of the environment, or, where a solution is forced on the animal, by "working through" the problem.

[1] *Behavior and Neurosis. An Experimental Psychoanalytic Approach to Psychobiologic Principles.* By Jules H. Masserman, M.D. (18s.) Chicago: University of Chicago Press; London: Cambridge University Press. 1943.

INTERCELLULAR HORMONES

For some years it has been known that growth-promoting factors can be obtained from plant and animal tissues and in greater amount when such tissues have been injured. The frequent speculations on the role of these factors in the processes of wound healing and in tissue overgrowth have been severely limited by the obscurity surrounding their origin and nature. Recent publications of Loofbourow and his colleagues,[1] however, have gone far to unveil the mysteries of these factors, called by him "intercellular hormones." The earliest of their publications showed that there appeared in the fluids surrounding the tissue factors which stimulated cellular proliferation when yeast, various other micro-organisms, living tissues of rat, mouse, and chicken embryos and of the adult newt are subjected to various forms of injury such as lethal ultra-violet irradiation, *x* rays, mechanical injury, and chemical irritation. The findings of previous workers were supported and extended. In the later papers, however, by limiting their attention to the growth factors produced by yeast cells damaged by ultra-violet light, and assaying the potency of these factors by their ability to promote the proliferation of yeast cells in Reader's solution, Loofbourow and his co-workers have made some interesting advances.

[1] *Biochem. J.* 1940, **34**, 432, 1580; 1941, **35**, 603; 1942, **36**, 513, 631, 737.

The first fact to be established was that these proliferation-promoting intercellular hormones were to a great extent soluble in alcohol and in acetone, largely thermostabile, entirely free from proteins, and similar in many respects to "bios"—the term used to describe the body of factors required for the growth of yeast and including inositol, vitamins B_1 and B_6, β-alanine, pantothenic acid, and biotin. It was also noted that the higher the potency of the intercellular fluid the higher was its content of substances with an absorption spectrum showing a maximum at 2,600 Ä, characteristic of purines and pyrimidines. Experiments were then planned to determine whether these factors were released as a result of cell disintegration or of increased cell permeability, whether the factors were largely synthesized by living injured cells and released by them into the intercellular fluids, or whether the activity of these fluids was attributable to some combination of these possibilities. It was found that slow injury yielded intercellular fluids of greater potency than did rapid killing, the potency of the fluids increasing rapidly before appreciable mortality occurred. Further, the potency was greater when cells were injured in a physiologically favourable suspension medium such as Ringer or Reader solution than when injured in distilled water or isotonic salt solution. Active factors appeared in suspensions of cells exposed to high concentrations of CO_2, though the cells were not killed. Cells killed quickly by grinding or boiling and then subjected to lethal ultra-violet light yielded less potent preparations than cells injured slowly by ultra-violet light before grinding or boiling. It thus seemed probable that the proliferation-promoting activities of the intercellular fluids were due either to the release of normal cell constituents as a result of increased membrane permeability or to the release of materials synthesized in the living cell as a response to the injury, or to both of these processes. Further observations supported and extended these possibilities. No change in cell numbers and no cytolysis were observed during the irradiation of cell suspension, indicating that the proliferation-promoting factors were released to the intercellular fluids through the membrane of substantially intact cells. Studies with radio-active phosphorus indicated that cell membrane permeability increased during radiation—a fact confirmed by the observation that during injury the average cell volume decreased by more than one-quarter. From these studies Loofbourow and his colleagues conclude that the production of the intercellular hormones by damaged cells is due to increased cell membrane permeability, allowing the diffusion into the surrounding fluid of various normal non-protein cell constituents and the resynthesis of some or all of these materials within the living injured cell as their concentration in the cell is disturbed by the diffusion process.

With such an interpretation of the manner in which the intercellular hormones may be produced, it was almost inevitable that attempts should be made to determine whether known growth factors could account for the proliferation-promoting effects of damaged yeast-cell suspensions. Tests with 15 amino-acids, yeast and thymus nucleic acids, inositol, thiamine, riboflavin, adenosine, and nicotinic acid, used singly, had either imperceptible activity or not enough activity to account for that of intercellular hormone preparations. When, however, some of these materials and other known growth factors were used in combination, the proliferation of yeast-cell suspension was profoundly stimulated. A mixture of thiamine, riboflavin, pyridoxine, calcium pantothenate, biotin, choline, and nicotinamide strongly stimulated the proliferation of yeast cells in Reader's solution, while the further addition of a mixture of glutamic acid, asparagine, aspartic acid, leucine, and arginine increased this effect. The vitamins also hastened the growth of yeast in the presence of preparations from damaged and undamaged cells, the further addition of the amino-acid mixture increasing the effect still more. However, the growth kinetics with the vitamin and amino-acid supplements differed from those with the damaged cell product, and it seemed that additional factors were present in the latter. Since a correlation had already been found in damaged cell preparation between proliferation-promoting activity and the concentration of materials showing absorption spectra characteristic of purines and pyrimidines, and in particular of adenine, a number of such compounds were tested. None when used alone would produce the activity of damaged yeast, though adenosine triphosphate showed activity greater than the others. A mixture of adenosine triphosphate and the vitamin supplement was found to have a proliferation-promoting activity like that of a damaged cell preparation, while further supplementation with the amino-acids increased this activity still more. However, the amount of adenosine triphosphate required to produce this effect was about ten times the amount indicated by the intensity of absorption at 2,600 Ä of the damaged yeast-cell preparation used, suggesting that adenosine triphosphate was not necessarily the purine or pyrimidine derivative partially responsible for the activity of these products.

It is extremely satisfactory research which enables a phenomenon previously shrouded in mystery and cluttered with cumbersome descriptive phrases to become explicable in terms of the behaviour of known chemical substances. Loofbourow and his collaborators have still a number of gaps to fill in the story of their "intercellular hormones," and this they will no doubt hasten to do. In the meantime, however, their work should prove a valuable stimulus to studies on wound healing and tissue regeneration. Perhaps the hastening of wound healing induced by embryonic and other tissue fluids and by maggots will also become more completely explicable in terms of known chemical substances. One of the most pleasing aspects of Loofbourow's work is the clear demonstration that, while substances used alone may have no marked activity, when used together they become active. It seems that the experiments now in progress in various laboratories on vitamin C in healing processes would perhaps lead to more useful results if additional essential nutrients were taken into consideration at the same time.

INDUCED VITAMIN B_1 DEFICIENCY IN MAN

Williams and his co-workers, who have already published three studies on induced vitamin B_1 deficiency in man,[1 2 3] have made yet another contribution to the subject.[4] Two volunteers were given a basal diet containing not more than 0.1 mg. of vitamin B_1 per 1,000 calories daily (0.5 to 1.0 mg. per 1,000 calories daily is considered the optimum). This is much less vitamin B_1 than was given in previous studies. The diet was adequate in other respects, and was supplemented with halibut-liver oil, irradiated ergosterol, ascorbic acid, riboflavin, nicotinamide, pyridoxine, pantothenic acid, choline, inositol, iron, and calcium—all known to be essential for either human or animal nutrition. Any deficiency symptoms could then be reasonably attributed to lack of vitamin B_1. The experiment lasted for 120 days, although every two weeks an injection of 1.0 mg. of vitamin B_1 was given for a "periodic partial cure" of the deficiency. Symptoms of vitamin B_1

[1] *Proc. Mayo Clin.*, 1939, **14**, 787.
[2] *Arch. intern. Med.*, 1940, **66**, 785.
[3] Ibid., 1942, **69**, 721.
[4] Ibid., 1943, **71**, 38.

deficiency developed as early as the thirtieth day of restriction. The first objective evidence of abnormality was a decrease in the urinary excretion of the vitamin after a test dose of 1 mg. Almost simultaneously the pyruvic acid level in the blood after the administration of glucose became elevated, and the subjects became listless and complained of anorexia and easy fatigue. Listlessness progressed to apathy, anorexia to nausea, and fatigue to prostration, with diminished response to test doses of vitamin B_1 and with an elevation of the blood pyruvic acid. At the same time complaints of paraesthesia in the legs were made. Later objective signs of disturbances in the nervous pathways became evident, and after 110 days on the restricted diet signs and symptoms of polyneuropathy appeared. Defects in the cutaneous sensory pathways, depression or disappearance of the tendon reflexes, and paralysis of the muscles of the thighs and legs became apparent. Paralysis of muscles and loss of tendon reflexes were not observed in the earlier studies—possibly in the first study the restriction of vitamin B_1 was too severe for the experiment to be carried on over any length of time, while in the other studies the restriction was not severe enough. The disturbances responded to the administration of large doses of vitamin B_1, but only after many weeks, and in one of the cases incompletely after four months of continuous treatment. It was also noted that invariably appetite was improved and activity resumed for 7 to 10 days after the injection of the test dose. The outstanding subjective features of a pure vitamin B_1 deficiency in man would therefore appear to be anorexia, fatigue, and symptoms of polyneuropathy.

Johnson and his colleagues[5] subjected ten men to hard physical work on diets deficient in parts of the B complex. Fatigue, deterioration in physical fitness, muscle pains, poor appetite, and constipation were complained of after two weeks. Vitamin B_1 alone in doses of 2 mg. daily did not clear up these symptoms, but brewer's yeast did. Similar observations were made by Egaña and others[6] on sedentary subjects.

Interesting as these studies are, it must not be forgotten that in actual practice deficiency diseases are never limited to lack of a single factor, or even a group, such as the B vitamins. Beriberi is not caused by a deficiency of vitamin B_1 alone; it is a poly-avitaminosis. Polished rice, which is consumed in countries in which beriberi is endemic, is deficient not only in vitamin B_1 but also in vitamins A, D, and E, riboflavin, nicotinic acid, pyridoxine, choline, calcium, iron, and other minerals. Deficiency of vitamin A and members of the vitamin B complex has been shown to produce central and peripheral nerve lesions.[7,8] It is also possible that vitamin E deficiency may play a part in the advanced muscular degeneration seen in beriberi. Another fact that may complicate the picture is that polished rice may be deficient not only in vitamins but in certain amino-acids (e.g., methionine) essential for human nutrition. The fact remains that in none of the studies on induced vitamin B_1 deficiency in man has the full-blown picture of beriberi been produced.

HOSPITAL PHYSICISTS ASSOCIATION

The inaugural meeting of the Hospital Physicists Association, held in London at the British Institute of Radiology on Sept. 24, was attended by 37 physicists drawn from hospitals all over the country. The aims of the new Association are to discuss matters arising out of the mutual interests of those engaged in a branch of scientific work which has grown up largely in the last 30 years. Membership is open to physicists attached to hospitals, medical schools, medical or biological research departments. The first meeting was followed by visits to the Middlesex, Royal Cancer, and Westminster Hospitals on Sept. 25. The afternoon session was devoted to papers. Dr. H. T. Flint spoke on technique with the various radium gramme units, Prof. Hopwood gave an account of the betatron, Prof. Stead discussed teaching for the diplomas, and Prof. Sidney Russ read a paper on the professional equipment of a hospital physicist. Messages of good will from the National Radium Commission and the Council of the British Institute of Radiology were read at the meeting. It was agreed to hold at least three meetings during the year, one of which should be in the Provinces. Prof. Russ was elected chairman for the first year, with Dr. Wilson of Westminster Hospital acting as hon. secretary. Prof. Russ recalled that the first full-time appointment as physicist to a hospital was made 30 years ago. It seemed likely that to-day between 50 and 60 physicists were engaged in some capacity in hospital or medical research work. A good start was made with the new association, with plenty of evidence of vitality among its members.

PLANNING THE AIR ABOVE

The replanning of towns and cities will be largely frustrated if there is no planning of the air above them. One of the many good causes which has suffered a setback in the war is smoke abatement. Excessive smoke emissions from factory chimneys are now too often seen, and authority gazes at them with a blind eye. Planning for smokeless air, as the general secretary of the Smoke Abatement Society, Mr. Arnold Marsh, pointed out recently, must proceed in two phases: the first to ensure that new sources of smoke are not created in post-war buildings, and the second, and more difficult, to endeavour to get rid of the smoke nuisance in buildings that now exist. So far as new building is concerned, over eighty local authorities, including the councils of most of the large cities, have passed resolutions supporting certain proposals for the prevention of new smoke. One of the most important of these is to require the approval of a special authority before new fuel-burning plant is installed in industrial premises. This method, which has found a wide acceptance in the United States, has also during the last seven years been followed in a voluntary way at Birmingham, where, on plans for new buildings being deposited with the surveyor's department for approval, they are passed on to the public health department for "observations," thereby affording an opportunity for discussion and suggestion concerning the suitability of fuel-burning plant from the point of view of smoke prevention.

The larger ogre to be combated, however, is domestic smoke. The ten million chimneys of the homes of England are responsible for about two-thirds of the total nuisance. If clean air is to be enjoyed in the urban parts of this country something must be done about the domestic open fire. The open coal-fire grate is entrenched not only in house architecture but in sentiment, and although gas fires and electric heaters have their place, nothing short of a revolution will dislodge the open fire from the main living-room. Indeed, did not the recent committee of the Royal College of Physicians, in its report on new housing, concede one open fire for each house? From a recent address delivered by a fuel expert to the Women's Advisory Panel of the Domestic Fuels and Appliances Committee, which is advising the Government on fuel economy, we

[5] *J. Nutrit.*, 1942, **24**, 585.
[6] *Amer. J. Physiol.*, 1942, **137**, 731.
[7] *J. Physiol.*, 1941, **99**, 467.
[8] *Arch. Neurol. Psychiat.*, Chicago, 1937, **37**, 286.

gather that the solid-fuel industry is concerned in evolving a fire grate which will make unnecessary the sooty flurry that attends the lighting of the fire every morning. A grate is being constructed in which the fire can be so banked up at night that a touch of the bellows will rekindle it within a few moments. Along with this goes another development towards the production of some appliance for burning coal or one of its derivatives smokelessly or almost so. These two inventions when they arrive will make the solid-fuel industry complementary to the gas and electric industries and will do away with the stigma at present attaching to the open coal-fire that it causes atmospheric pollution.

These improvements relate mainly to future building. There remains the problem of getting rid of the smoke from which we at present suffer. This must be gradual, but it need not be slow. One proposal is to establish smokeless zones in the centre and new areas of towns as the first stage of planning for the total abolition of smoke, these areas to be enlarged as fuel appliances for the necessary replacements become available. If this is done, the secretary of the Smoke Abatement Society (surely the Society might change its name to "prevention" or "abolition") thinks it not too sanguine to foretell a smokeless Britain within ten years. One outstanding difficulty may well be railway smoke, on which subject those who live near the main lines of railways could say a great deal. Electrification has gone some way to solve the problem and may go still further, but we cannot see electrification being introduced for a long time to come in the goods traffic marshalling yards of railways, which will remain the final lairs of the twin dragons of smoke and noise.

POISONING FROM HAIR DYE

Since the introduction of coal-tar dyes into the fur industry in 1888 and the subsequent widespread use of one in particular—paraphenylenediamine—as a dye for human hair, there have been many reports of poisoning by this substance. The first toxic effect noted was dermatitis, an epidemic occurring in London in 1922 among women wearing coats with fur collars. During the investigation stimulated by these cases it was found that dermatoses were very frequent among workers in the fur industry, and were due in general to the oxidation dyes and in particular to an intermediate product formed in the course of the oxidation. The dermatoses were in most cases allergic. In a recent investigation of the fur industry in New York[1] these findings have been again confirmed, and patch tests showed in the great majority of cases a hypersensitivity to paraphenylenediamine. The distribution of the rash was variable, beginning generally on the hands, sometimes on the face, arms, trunk, or legs. More serious than the skin-irritant property of paraphenylenediamine, or even than its capacity for producing bronchial asthma—also probably an allergic phenomenon—is its systemic toxic effect, especially on the central nervous system. In acute poisoning the neurological symptoms—dizziness, nystagmus, tinnitus, vertigo, and diplopia—predominate, while in fatal cases acute and subacute necrosis of the liver and severe congestion of the viscera have been found. In one case at least a fatal anaemia has been attributed to the use of a hair dye containing paraphenylenediamine.

Although neurological complications, including papilloedema, retinal haemorrhages, and even optic neuritis, have been described in a number of cases, the actual effects of the poison on the central nervous system have been fully investigated only recently, and the histopathological changes reveal an interesting link with the earlier post-mortem appearances of the liver.[2] In the case described, that of a woman who had used "ursol," a paraphenylenediamine hair dye, for eighteen months, the chief neurological signs were asthenia, drowsiness, muscle tenderness, slightly exaggerated deep reflexes, left ankle clonus, absence of abdominal reflexes and plantar responses. There was also low-grade fever, glossitis, yellow-greyish discoloration of the skin, albuminuria, and severe anaemia. The patient's condition gradually deteriorated, and she died about nine months from the onset of symptoms. At necropsy gross hepatosplenomegaly was observed, and microscopical examination of the liver showed areas of atrophy and local necrosis. In the central nervous system pathological changes in the nerve cells indicated both primary and secondary changes as the result of the paraphenylene poisoning. The most important of these was the deposition of peculiar pigment granules in the nerve cells of the pallidum, the striatum, the hypothalamus, and the dentate nucleus. These were regarded as an "oxidase" reaction due to the direct action of the toxin circulating in the blood stream. Changes considered secondary to the involvement of the liver were deposits of iron pigment, the presence of Alzheimer glia cells, and chromatolysis. As in the case of so many other toxic organic compounds, it appears that the very property which makes paraphenylene industrially effective—that is, its readiness to oxidize into a fixed dark coloration—confers upon it its essential toxicity—the capacity for being readily oxidized by the blood and tissues of the living organism.

[1] Heimann, H. : *J. ind. Hyg.*, 1942, **24** 322.

[2] Dawson, C. : *Arch. Neurol. Psychiat.*, Chicago, 1943, **49**, 254.

FAMILIAL MORTALITY AND SCHIZOPHRENIA

Dr. S. Rosenzweig and Mr. D. Bray, of the State Hospital, Worcester, Mass., raise an interesting point in a recently published paper,[3] which is mainly statistical. In a comparison of samples of schizophrenics, manic-depressive patients, general paralytics, and normal subjects, the families of the first-named showed a higher frequency of instances in which one at least of the siblings died within the subject's lifetime and before he (the subjects were all males) reached the age of 19. Anyone familiar with the pitfalls of selection—namely, biased or possibly biased sampling—naturally insists on a critical analysis of the evidence. The authors have taken pains and had the advice of a statistician in the United States Bureau of the Census; we think the conclusion drawn is justified by the evidence. One statistical result probably needs control. The authors find that in the families of the schizophrenics 56% of the deaths occurred before the patient was 6 years old, and so only 44% between the patient's sixth and nineteenth birthdays. This result is used as an argument in favour of the death having some aetiological importance as a psychological factor of the psychosis. It is to be noted, however, that the proportion of deaths under the age of (taking the last life table of England and Wales for males) 39 which would occur under the age of 6 is about 56%. Unless the result for schizophrenics is significantly different from that for the other groups, not much stress can be put upon it.

[3] *Arch. Neurol. Psychiat.*, Chicago, 1943, **49**, 71.

The first Inter-American Congress of Surgery will be held at Santiago, Chile, on November 14 with the co-operation of the surgical societies of Argentina, Brazil, Bolivia, Paraguay, Uruguay, and Chile. The Congress has been organized to commemorate the centenary of the University of Chile.

POST-WAR HEALTH SERVICES

RECENT SPEECHES BY THE MINISTER

In the first week of this month the Minister of Health, Mr. Ernest Brown, gave public addresses in which he referred to the Government's plans for a comprehensive health service, to the need for further improvement in non-institutional medical facilities, both curative and preventive, and to the relation of the individual doctor to the organization of preventive medicine.

At Oxford on Oct. 1, where he was the guest of the Nuffield Provincial Hospitals Trust, the Minister began with compliments to the energy and enthusiasm with which the Trust pursues its aims, and in particular to the work done during the past year, jointly with his Department, in making surveys of the hospital services throughout the country. Under wise guidance, he said, Oxford had come to be regarded as a laboratory in which all manner of experiments in relation to medical and hospital services were being conducted, or as a power-house providing the motive force for developments elsewhere. Two passages from the Minister's speech are quoted here because they seem to go beyond the matter in which the Oxford audience was primarily concerned.

A Comprehensive Medical Service

"Since we met a year ago developments have occurred in relation to the post-war health services generally which have tended to overshadow the purely hospital aspect of the health problem. It has, of course, been clear to me from an early stage—as I am sure it has been clear to the Trust and to every group of careful observers—that there is room for improvement in the non-institutional as well as in the institutional medical services. Sir William Beveridge's report brought this aspect of affairs before the eyes of many who had not previously been aware of it, and at the same time gave an impetus to our plans for post-war reform. As you know, the Government at once accepted Sir William Beveridge's 'Assumption B'—the provision of a comprehensive health service—and instructed the Secretary of State for Scotland and myself to go in detail into the methods by which their decision might best be implemented. Accordingly we have during the earlier part of this year been engaged in a series of informal and non-committal—but none the less useful—discussions with representatives of the medical profession, the local authorities, and the voluntary hospitals."

"Naturally enough, perhaps, in discussions of this kind, there have been unfruitful as well as fruitful passages. Unfortunate though it may appear, unfounded suspicions about the Government's intentions have given rise to still more unfounded misstatements, which have in turn engendered unnecessary resolutions. Hard words have been said about politicians—not that the politicians will take offence, for they are perfectly accustomed to this method of relieving the feelings. I am confident that this is a passing phase, and that when the Government's proposals are published, and informed criticism and debate become possible for the first time, a calmer atmosphere and wiser counsels will prevail. Criticism of proposals which are not known can scarcely fail to be unfruitful. There is now in preparation a White Paper, which will serve as a basis for public discussion before the next stage of legislation. With the issue of the White Paper debate can usefully begin; until then it is wiser to suspend judgment."

The Promotion of Health

In his inaugural address at Westminster Hospital Medical School on Oct. 4 the Minister took the opportunity to consider some aspects of the future of the national health services. He recalled that the Act which created the Minister of Health twenty-four years ago defined his duties as those of "the promotion of the health of the people." What was this phrase likely to mean in the future, both in general terms and from the point of view of the individual doctor?

Curative Medical Services

The first aspect of the promotion of health, and the one that had bulked largest in history, was that of healing the sick. In this country a vast apparatus of curative services had been built up, originally by private enterprise and voluntary effort, more recently by public action. In the front line was the general practitioner attending and treating his patients either privately or under the National Health Insurance scheme. To support and help him were the consultant and specialist, with all the resources of the voluntary and municipal hospitals, and all the skill of the nursing and other ancillary professions. Scientific advances were constantly being made—we were in the midst of one now with the remarkable developments of chemotherapy. By all the tests that could be applied the results were good—for example, even within the limits of the present century there had been a fall of 31% in the crude death rate, and in a hundred years it had been halved. But in spite of the quality and range of the curative services we were not making the best possible use of the brains and hands and equipment available. Indeed, how could we have done so?—for hitherto no one had been charged with the specific responsibility of making sure that quantity and distribution of the services were such as to enable every member of the community to enjoy their use whenever required. There were other defects too, giving rise to other queries. If the services were inadequate in quantity, could reorganization effect improvements? Was there room for more co-operation and less competition? All these questions had become more and more insistent of recent years, largely, he suggested, because planning and development of the curative services had lagged behind those of other aspects of the health service. That was why the Government had accepted Assumption B of the Beveridge report and had put its hand to the task of creating a truly comprehensive service. What the exact form of the service would be, and how it would immediately affect the individual doctor or the individual hospital, remained for discussion after the forthcoming White Paper had been issued.

"But from the point of view of long-term development some general implications seem clear—the integration of all hospitals in a common service, the development of fuller consultant and specialist services based on the hospitals, closer team-work between general practitioners, assisted perhaps by the creation of health centres. Changes like these may appear to mean some loss of freedom. I would suggest that the true liberty of the professional man is freedom to exercise his knowledge and his skill according to his conscience and his ability, without fear or favour."

The Preventive Services

The second branch of the promotion of health was one of more modern growth—that of preventive medicine. Historically it first emerged as the prevention of disease by improvement of the human environment. In this sense the nineteenth century was the great era of preventive medicine, for the environment of the huge new urban population created then new problems of disease on a much vaster scale, and necessitated the organization of prevention as a more effective alternative to cure—the building of the sewer instead of the pest-house. Removal of nuisances, drainage, water-supply, housing, town-planning—that was roughly the order in which preventive medicine tackled the problems. The results were almost staggering; they surpassed even the triumphs of curative medicine. Cholera had long been unknown; there had been no deaths from typhus for twenty years; the death rate per million from enteric fever had fallen from 370 to 2 in the last seventy years. More recently preventive medicine had branched out in a new direction. After the Boer War the school medical service was founded to watch over the health of school children. Later the maternity and child welfare service was put on a more regular footing to perform the same function in relation to pregnant women and young children. Thirty years ago the tuberculosis service began to get under way, one of its objects being to trace contacts, to stop the spread of the disease, or to check it at the earliest stage. None of these types of activity, any more than vaccination against smallpox or immunization against diphtheria, was primarily curative; nor were they environmental, though they all embodied the preventive principle. The essence of each was that it represented the application of preventive medicine personally to individuals. A third aspect of preventive medicine had given rise to the phrase "positive health." The questions asked in relation to disease: "What is the cause of this condition? and what is the treatment for it?" led on naturally to a third question: "How can the recurrence of this condition be prevented?" The developments of preventive medicine had reworded the last question in a new form: "How can individual health be promoted by positive action so that this condition will not occur at all?" This was a field which in many ways we were only beginning to explore, though we knew some of the answers to a few of the ramifications of the question.

The Family Doctor and Preventive Medicine

Some of the problems involved, Mr. Ernest Brown said, raise broad questions of social policy—housing, agriculture, foreign trade, taxation. On these the individual doctor as citizen had his part to play, a part which could not fail to be important owing to the professional weight attaching to his views. But as a doctor even more than as a citizen he must be closely concerned with the promotion of health.

"Some of the profession will, of course, be in contact as experts with environmental problems—the medical officer of health, the bacteriologist. What I have in mind, however, is rather the general practitioner, the family doctor, and his relationship to prevention. Here there is one reform we must work for, and that is to bring together again the family doctor and those personal preventive services like child welfare and the care of pregnancy, which have tended to develop along increasingly divergent courses. That is one reason why it is so essential to plan for a comprehensive

service which provides a family doctor for those many families that have hitherto been without one. Another reason is that the general practitioner can and will have a most important role in putting across to the individual citizen the principles of positive health. We are gradually realizing the importance of health education, and we are gradually learning more effective ways of catching the ear and the eye of the public at large. But in bringing home to the parent or adolescent or child the principles of healthy living there is no method so effective as that of personal contact and individual advice, and no adviser so effective as the family doctor. My hope is therefore that, on the firm foundation of comprehensive curative medical facilities available to every citizen, we shall be able to build a health service with the positive promotion of health as its foremost object."

Nova et Vetera

COS AND HIPPOCRATES

A HISTORICAL REVISION

The events of the war have brought Cos into the news. Inevitably there comes to memory the name of its great medical son. Hippocrates of Cos has always been revered as the father of medicine. The extensive, interesting, and beautiful literature in his name has attracted scholars in every generation. From these great books, from ancient traditions, from contemporary and later references, from various material remains, from the results of excavations, from ancient but relatively late and unauthentic "lives," and perhaps not least from their inner consciousness, medical writers have evolved the character of the ancient Greek physicians as exampled by their great progenitor. Unquestionably this picture, which has existed for at least 2,000 years, is a very moving one. It has proved to be of highest ethical value to practitioners through the ages.

Can we still treat this picture as accurate in the photographic sense? Was there really a physician of Cos, Hippocrates, who lived from about 460 to about 360 B.C.? Did he learn his art on his native island, where it was taught him in the purest form by priests in a temple of Aesculapius? Did he practise over many parts of the Greek world with the greatest success, gaining the respect of all men for his character and attainments? Did he write many of the works in the great "Hippocratic Collection"? Has his likeness after the flesh really come down to us in the well-known bust, the features and expression of which seem to suggest a wise and thoughtful man pondering human ills?

In the main the answer to these questions must now be, No. For a generation or more the traditional picture has been undergoing disintegration. Medical historians have naturally sought to preserve an exquisite story, but the plain truth is that advance in knowledge has at last made a revision of the traditional view inevitable. For sheer brevity we set forth the present state of the extremely complex Hippocratic problem in catechismal form. There is no need to treat the answers here given with the respect that are accorded to certain other catechisms. They do represent, however, the sound working probabilities.

A Catechism on the Hippocratic Problem

Was there a physician, Hippocrates of Cos, who flourished about 400 B.C.?—Yes, certainly. He is mentioned in two dialogues by his younger contemporary Plato, briefly, but with respect.

Did Hippocrates of Cos write any of the works in the Hippocratic Collection? There is no evidence of value that he wrote any of them. There is some little evidence that he wrote nothing at all.

Are there remains on Cos that can be linked with Hippocrates?—No. The temple of Aesculapius there has nothing to do with Hippocrates. The Aesculapian cult did not reach the island till after the death of Hippocrates. Objects from Cos suggest a rather low civilization there in Hippocratic times. A number of inscriptions at Cos show, however, that a medical school flourished there some 200 years after his death. Perhaps this school was related to the rise of the tradition that the Hippocratic Collection was his work.

When and where was a Hippocratic Collection first linked with the name of Hippocrates?—Probably about 300 B.C., and almost certainly at Alexandria.

Why were the books of the Collection labelled Hippocratic?—A brief answer must over-simplify. The Alexandrian physicians were interested in dietetics. They sought texts on the subject. The great library provided them. Some of these MSS. mentioned Hippocrates as the oldest exponent of dietetic teaching. Thus MSS. bearing his name became specially valued. Demand created supply. Dealers were naturally not slow to discover MSS. of "genuine works of Hippocrates." Hence the nucleus of the Collection.

Why did the Collection grow further?—Most of our knowledge of ancient medicine comes from Rome in the first century (Celsus, etc.) and second century (Galen, etc.) A.D. To writers of Imperial Rome the time of Socrates and Hippocrates, Plato and Aristotle—the fifth and fourth centuries B.C.—was a golden age. Thus the Hippocratic legend launched at Alexandria gathered momentum at Rome.

Have we any idea of how Hippocrates of Cos practised?—We can guess by piecing together scraps from our knowledge of Greek life and from those parts of the Hippocratic Collection that are of the fifth or fourth century B.C.

What is the result of such guesses?—The medical man in those centuries was a craftsman. His status was a little higher than the tailor and the shoemaker, and comparable to that of the artist, but well below that of the sophist or soldier. Normally he travelled from place to place, settling for a while where he found practice active. Hence the extreme importance to him of what he calls "Pronoia," which is not quite what we call "prognosis" but is discerning a patient's trouble before he tells you—"spot diagnosis plus prognosis." By the fourth century, or earlier, larger Greek towns had appointed their own resident physicians. Possibly Hippocrates of Cos, having been first a wandering craftsman, settled down as a town physician.

Have we a portrait of Hippocrates of Cos?—Surely not. In his day artists hardly attempted what we call portraiture. The famous portrait-bust in the British Museum, often reproduced as of Hippocrates, is very much later and is of the Stoic Chrysippus (*c.* 280–206 B.C.).

These, dogmatically expressed, are among the general results of modern research on Hippocrates and on Cos. Some are more reliable than others. Collectively they provide a picture of Hippocrates very different from the traditional. There is at least the consolation that the fighting on Cos is not likely to have destroyed the embodiment of any sacred medical tradition.

C. S.

Correspondence

R.M.B.F. Christmas Gifts

Sir,—It is my custom each autumn, through your columns, to invite my medical colleagues to take their part in the Christmas Gifts Fund of the Royal Medical Benevolent Fund. This scheme, so generously supported by many, has become very remarkable, as it has been the means not only of bringing to many old and lonely people a gift of friendship and sympathetic understanding at Christmas time, but it has also given many of your readers an insight into the great work which the Royal Medical Benevolent Fund is doing daily in helping medical colleagues, or the widows and children of deceased medical practitioners who are in financial difficulties.

We look upon the Christmas gift of £2 to each beneficiary as something "extra," but I must emphasize that the regular allowances have to be paid throughout the year. New annual subscribers are very urgently needed for our general funds, and surely it is for the present generation of practitioners to take up their share in a work which is a common professional inheritance and tradition. It is not difficult to realize what happiness and comfort a Christmas gift of £2 brings to an old doctor, an aged widow, or daughter living alone, possibly suffering from illness or infirmity. We ourselves know the difficulties and discomforts of our own lives caused by the present war. May I appeal, Sir, very earnestly on behalf of those who have suffered so much more than ourselves?

I venture to make this letter a *twofold* appeal: (*a*) to all regular subscribers to send their "extra" for the Christmas Gifts Fund; (*b*) to all others, to show their practical sympathy

by becoming subscribers to our general funds. I do not ask for large contributions.

Christmas gifts donations should be marked "Christmas Gifts," and all cheques made payable to the Hon. Treasurer, Royal Medical Benevolent Fund, 1, Balliol House, Manor Fields, Putney, S.W.15.—I am, etc.,

THOS. BARLOW,
President.

Books for Prisoners of War

SIR,—Members responding to my appeal at the Annual Representative Meeting should send their cheques to the Hon. Treasurer, Medical War Relief Fund, B.M.A. House, Tavistock Square, London, W.C.1, making them payable to him and enclosing a slip to say that the gift is intended "for medical books for prisoners of war."—I am, etc.,

JOHN W. BONE.

Early Recognition of Cancer

SIR,—I am glad that Mr. Malcolm Donaldson (Sept. 25, p. 402) has drawn attention to the excellent propaganda work already carried out by the British Empire Cancer Campaign in this vital sphere. I am not unaware of such efforts, but a figure of 58,000 addressed in 4 years is perhaps as powerful an argument as I could wish to see brought to show the inadequacy of our achievement so far.

I have before me a copy of the Annual Report of the Campaign for 1942—the total income about £45,000. In such exiguous circumstances, all praise to them for their very real achievements. But surely the scale of things needs to be changed when we begin to implement the Cancer Act. Would it not be a sound financial investment, viewed ever from the narrowest economic angle, to start off not with £45,000 but with £450,000 in a real nation-scale effort to put cancer "on the map"? I would like to see the subject publicized by every modern method and introduced by a talk on the wireless after the Sunday 9 o'clock news by, say, Lord Horder, followed by a regular series of talks; short films at all local cinemas to show that pessimism about cancer is out of date; skilful advertisements in the Press on the lines of the current V.D. campaign; as well as the very necessary patient slogging away in the manner mentioned by Mr. Donaldson. Incidentally, it is pleasing and important to have his testimony about the bugbear of cancer phobia.

Obviously nothing less than a Governmental grant will be adequate for all this. Our plans should match the magnitude of the problem, and the time to begin is now.—I am, etc.,

JOSEPH WALTER,
Assistant Medical Director, Sheffield Radium Centre.

Sterility and Impaired Fertility

SIR,—The official census data do not yield any direct information concerning the frequency of sterility (childlessness) or impaired fertility (small number of children). Nearly all information in this field springs from the general experience and the specific efforts of individual workers—mostly clinicians interested in the treatment of involuntary sterility. The following summary reflects the views formed by British and American investigators.

1. About one-tenth of all marriages remain childless. It has not been suggested that there are class differences which would reveal themselves without specific statistical investigations. Childless marriages among working-class patients are common.

2. Permanent childlessness is rarely deliberate. This conclusion is based on the experience of medical practitioners and on specific investigations. Thus inquiries were made among industrial workers in order to ascertain how many of the married but barren women were deliberately childless. This inquiry was conducted by a doctor who interviewed personally every woman; and the inquiry was appropriate, since the childless women numbered up to 18% of groups (consisting of about 50 women each) questioned. Similarly another investigator inquired into the history of about 70 childless middle-class families who had not applied for advice. It appears that in about 90% of childless couples who have been married for at least five years the absence of children was caused by impaired reproductive power (low fecundity).

3. Furthermore, such inquiries among patients who did not request advice for sterility show that in at least 60% of one-child couples (numbering more than 100) married for more than five years, further conceptions were either desired or not deliberately prevented. Clinical experience extending to many hundreds of cases and investigations among working- and middle-class women indicate that the small family (two children) is also often due to low fecundity, and that fecundity tends to fall after the first or second confinement.

4. Data collected by individual clinicians and extending to over 4,000 cases and by clinics show that birth control, although applied at times by the great majority of the population, is rarely (in about 5% of young couples) intended to procure permanent barrenness. Furthermore, effective methods of birth control are usually sought among the working class only by women who have had one or more children. One of the statistical expressions of this fact is that in one group (numbering more than 200 women) of regular users of birth control the average number of children was higher than in a comparable group of women using the same methods intermittently. Further investigations show that the contraceptive methods most commonly used by the industrial population are notoriously unreliable (coitus interruptus or soluble pessaries); their seeming success, to which many working-class women attribute the small size of their families—i.e., 3 children in fifteen years of marriage—can be shown to reflect lowered fecundity in at least one-third of the cases (about 100) investigated.

5. Considering all available information it seems that in 60 to 90% of all barren and one-child couples lowered fecundity (involuntary factors) is involved. Lowered fecundity is also often found in couples with two or more children. But its practical significance is less than in the one-child families because the use of effective methods of birth control increases with the size of the family.

6. This widespread infecundity of the population is due in part to low female fecundity, particularly to conditions which tend to develop after confinements or miscarriages. But low reproductive power in men is very common; about 60% of husbands of childless women are either incapable of reproducing offspring or fail to attain a level of fecundity which would make conception easy to achieve (data from about 2,000 cases and American findings). Similarly the husbands in one-child families are often of low fecundity. Examination of about 100 volunteers (medical university students, professional men) confirms the view that average male fecundity is much lower than is commonly assumed. It appears to be definitely impaired in at least one out of five men examined. The subjects examined were mostly men in good general health.

7. Nearly 90% of the middle-aged childless women—i.e., the last generation of married women—of the industrial groups interrogated in inquiries had accepted their fate without seeking specific help from any doctor or clinic. The remaining women sought advice; but in less than 5% was adequate or even relevant advice given. Middle-class women seek advice much more frequently. In the great majority of cases examinations and advice still tend to be limited to the wife; recognition of the common male responsibility is relatively rare.

8. On the other hand the few specialized clinics which at present give advice on sterility are sought out by increasing numbers of women. Of the present generation of potential mothers one Glasgow hospital which maintains a sterility clinic (for women only) admitted 303 cases in 1938 and 505 cases in 1942. A similar increase of attendances has also been seen in others of the few clinics in this country which supply adequate facilities for the diagnosis and treatment of sterility. The interest shown by childless men is of a less active kind, but refusal to undergo examination is rare in childless or child-poor men (under 5% in hospital practice). A consideration of all available data strongly suggests that the barren and the very small family reflect lower fecundity rather than excessive unwillingness to reproduce. This being so, no effort to solve the problem of the decline in the population can be considered satisfactory unless it recognizes the necessity for providing facilities for the skilled diagnosis and treatment of all grades of infecundity.

—We are, etc.,

MARY BARTON,
F. J. BROWNE,
R. CHRISTIE-BROWN,
GLADYS DODDS,
GRETA GRAFF,
A. GREEN,
V. B. GREEN-ARMYTAGE,
CLARE HARVEY,
M. H. JACKSON,
R. W. JOHNSTONE,
W. C. W. NIXON,
C. LANE-ROBERTS,
A. SHARMAN,
M. MOORE WHITE,
B. P. WIESNER,
KENNETH WALKER.

Artificial Respiration

SIR,—It may help Prof. Cordier (*Journal*, Sept. 25) in his quest if I give him some of the results of an experiment suggested by and carried out on Squad. Ldr. E. A. P. This adult of 30 was anaesthetized deeply, an endotracheal tube of large bore passed, and the space between the outside of the tube and the trachea made air-tight by an inflated cuff. By means of a hand-bellows respiratory exchange was exaggerated, CO_2 washed out, and a state of apnoea induced. I would

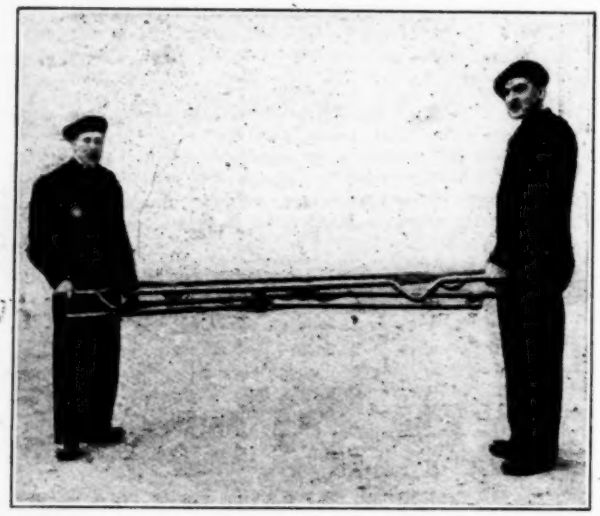
confirm Water's observation (*Anesth. & Analges.*, 1936, **15**, 151) that "an apnoeic patient under deep anaesthesia stimulates the candidate for resuscitation by artificial respiration." The endotracheal tube was connected to a recording tambour by Dr. Stuart Cowan and artificial respiration carried out by Dr. Mushin by many of the recognized methods. It is hoped to publish the full experiment shortly. In this case Eve's rocking stretcher method, with the patient prone, rocked through 90 degrees, gave an exchange of 580 c.cm.; Silvester's method, 400 c.cm.; and Schäfer's, 340 c.cm.—I am, etc.,

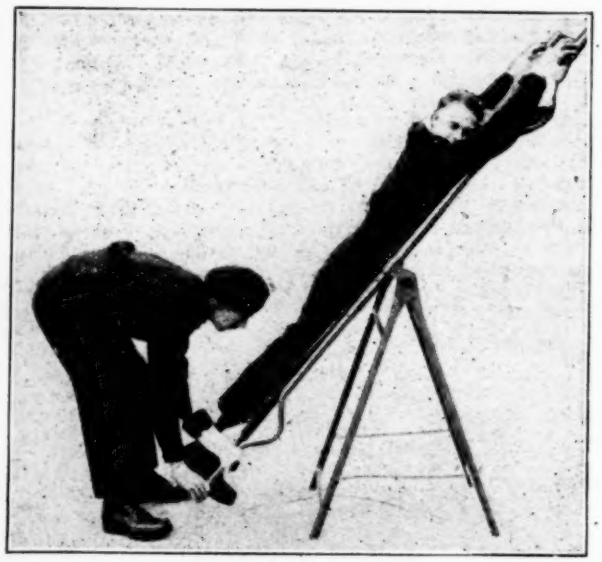
Oxford. R. R. Macintosh.

Folding Trestle for Rocking a Stretcher

Sir,—Eve's method of resuscitation implying restoration of circulation, respiration, and warmth as distinct from our somewhat ineffective methods of artificial respiration led me to ask Mr. Holm, an engineer member of our casualty services, to devise a folding metal trestle which could be attached to an ordinary A.R.P. stretcher.

I enclose photographs of this appliance, which I feel is portable, simple, and therefore effective. The height from the ground is 32 in. As recommended by Surg. Lieut. Gibbins and in *First Aid in the Royal Navy*, B.R.26, it gives that full





range of movement which is so essential in restoring circulation. It can be operated by any onlooker, and I have therefore placed the operator at the feet, thus allowing the trained first-aid worker to direct the operation, to watch for signs of returning consciousness, and to endeavour to maintain warmth by hot-water bottles or other means at his disposal.

Since at any accident to which I have been ever summoned there have been more onlookers than desirable there should be no question of any one person being fatigued from over-exertion since "detailed volunteers" will provide an ample service.

This stretcher-cum-trestle is kept at our first-aid post, complete with blankets and triangular bandages, as a readily portable unit of our equipment, and is therefore easily accessible at all times.—I am, etc.,

Melksham. D. Leigh Spence, District Medical Officer.

Psychology and the Common Cold

Sir,—In your issue of Oct 2 (p. 433) Dr. E. W. Braithwaite, consulting psychiatrist to the Ministry of Health, ends his letter on the common cold with this sentence: "The specific factor is psychological; the microbic one secondary." You will note he says "is," not "may be." It is remarks such as this which tend to make the mass of medical men in this country class the psychiatrist with the homoeopath, the chiropractor, and the osteopath, and view with grave suspicion the power they are gaining in the advisory positions to the Ministry of Health and to the Forces.—I am, etc.,

Streatley, Berkshire. Leonard Leslie, M.D.

Fibrositic Nodule

Sir,—Lieut.-Col. W. S. C. Copeman's article dealing with the aetiology of the fibrositic nodule (Aug. 28, p. 263) is a helpful contribution to the subject. The suggestion that not only influenza but many virus diseases are accompanied by pain radiating from small "myalgic" spots fits in well with experience of acute illness of various types. The further suggestion that the pain clears up but the "myalgic" areas do not is sound clinical observation. There is a danger, however, that this explanation of one form of myalgia is so straightforward and so easily understood that it will tend to obscure the fact that fibrositis is a tissue reaction to many insults and traumata, and that Copeman's article refers to only one aspect of its aetiology. Apart from certain rare syndromes, fibrositis of muscle and fascia is met with clinically under a variety of circumstance, sometimes taking a major part in the illness, but as often being incidental, although none the less painful for that. Acute myalgia, the condition to which Copeman refers, is present in many acute illnesses; Bornholm disease is the epidemic variety.

Chronic fibrositis—perhaps better termed "myalgia"—occurs under four main conditions. First, as Copeman suggests, in an individual who has developed "myalgic" spots after an acute infection; possibly undulant fever is the best example of this. Inseparable from this group, unless examination in a previous illness has been of assistance, will be the group of recurrent myalgias. This group can be divided clinically into those cases which always have myalgic spots and generally nodules and those which are quite free during the summer but fairly regularly develop an attack during the winter. The first of these subgroups is generally regarded as having a toxi-infective basis, and may contain some of Copeman's cases associated with an incompletely resolved infection. The second appears to contain idiopathic cases of unknown origin. As nearly everyone has had an acute illness of an influenzal type during his lifetime, without further investigation it is not possible to say how many of them fall into Copeman's group. It is likely, however, that some of his cases fall into both of these two subgroups, and that owing to his observations they may now be picked out, making the reservation that there is in these cases some additional anomaly which is not present in those cases which recover after their acute infection.

The third group is metabolic in origin; good examples are gout and diabetes.

The last group comprises local manifestations in muscle and fibrous tissue. These cases are usually associated with trauma and local stress and strain, as in osteo-arthritis of the hips and the so-called periarticular fibrositis, most often seen in infective (rheumatoid) arthritis but not confined to this disease.

The question of the radiation of pain from these myalgic areas appears to be more a matter of the anatomical location of the lesion than of its nature.

In a day when extensive laboratory and biochemical investigations are considered an essential preliminary to any contribution

to medical knowledge it is pleasant to see that a physician in the field can by care and accurate observation still make a substantial addition to our knowledge of medicine.—I am, etc.,

London, W.1. ERNEST FLETCHER.

Treatment of Lupus Vulgaris

SIR,—Your annotation on the treatment of lupus vulgaris (Sept. 18, p. 366) is very timely, and prompts me to comment on what you no doubt are correct in labelling "a national disgrace."

The City of Liverpool can claim exemption from this stigma. Some ten years ago, as dermatologist to the Liverpool Corporation hospitals, I felt that the disease was being treated very haphazardly by out-of-date methods and with miserable results. During a "bus-man's holiday" I visited many skin hospitals in London, and eventually arrived at the London Hospital, where I was given every facility by Dr. O'Donovan. He personally showed me the lupus clinic referred to in the annotation. I gave a verbal account of my experiences and embryo recommendations to our M.O.H., Dr. W. M. Frazer, and his deputy, Dr. C. O. Stallybrass, and they urged me to draw up a detailed report which they would bring to the notice of the City Council. This was done, and I was sent to the London Hospital again, where with the active help of Dr. O'Donovan and his sister-in-charge I learnt all the details. I tried to keep the expense of the proposed clinic in Liverpool to the lowest limits, but the Liverpool City Council insisted that no reasonable adjunct to the successful treatment of lupus should be spared. The result is that there has been in Liverpool for the past nine years a lupus clinic which will bear comparison with any in this country. We were especially fortunate in securing the services of a sister who had been trained by a nurse from the Finsen Institute in Copenhagen. Our Finsen-Lomholtz lamps do not require the whole-time attention of a nurse; with the active co-operation of our electrician they have been made foolproof and entirely automatic when once the patient has been placed in the required position; in fact all our water-cooled lamps have an ingenious arrangement whereby a failure in the water supply immediately cuts off the current, and any movement by the patient whilst under treatment by the Finsen lamp immediately rings a bell and brings a reprimand from the charge nurse.

The results of the treatment, particularly in the early cases, were so excellent that I conducted research in the haematology of the disease during treatment. These results were to be embodied in a chapter of a textbook on lupus edited by Dr. Airey in conjunction with other workers in special fields, but publication has had to be postponed till after the war. Dr. Airey paid a visit to the clinic, and appeared to be very impressed with it: in fact I like to think that his remarks in the *Bulletin of the National Association for the Prevention of Tuberculosis*, to which you refer, had some part, at any rate, of their inspiration from his visit to the City of Liverpool Lupus Clinic at Belmont Emergency Hospital. Although we have not the help of ancillary specialists in the building, nevertheless there is complete access to such help in the service of the Corporation, and it has been freely given.

It should be said that the vast majority of cases have been either cured or sufficiently relieved to perform useful work. As your annotator points out, the treatment is long and expensive, but its success in the absence of active lesions in the chest (11% in our cases) is so probable that it is well worth while. Local authorities in the surrounding areas have made use of the clinic, and it can be said that in this field the Liverpool authorities have shown that they are ready to support the suggestions of their medical advisers when the need is fully explained to them.—I am, etc.,

Liverpool. F. GLYN-HUGHES.

SIR,—Under the above heading (Sept. 18, p. 366) I find this remark: "The fact that the disease is not treated with all the means which modern science has put at our disposal is a national disgrace. Probably the chief reason for this deplorable state of affairs is financial. Lupus vulgaris is one of the most expensive diseases there is to treat." About twenty years ago the late Drs. Stopford Taylor and McKenna placed cases at my disposal for treatment at the Liverpool Skin Hospital. At the end of three months the worst and most extensive case was healed up; the patient had been attending the hospital for nine years. Dr. McKenna remarked: "I confess I was an absolute sceptic until I saw your work, but results speak for themselves." He then said: "You must have been considerably out of pocket for tuberculin." I replied: "I had used eighteen pennyworth of P.T.O. for the dozen or so cases treated."

Why will not the scribes and pharisees and high priests of the medical profession condescend to learn the technique for the correct use of such an efficient and cheap remedy? But I suppose it has been ever thus.—I am, etc.,

West Kirby. ADAM MOSS.

Toxicity of Methyl Acetamide

SIR,—The leading article on stimulation of leucopoiesis (Sept. 18, p. 365) suggests that the work of Zondek and Bromberg on the evocation of leucocytosis by 25% *p*-chloroxylenol in methyl acetamide is worthy of attention. The writer has ignored the evidence of the great toxicity of methyl acetamide. Kuhn (*Chemical Abstracts*, **32,** 4200) called attention to the grave and sometimes fatal effects of this substance in small doses in rats; and Weslaw *et al.* (*Chemical Abstracts*, **32,** 8580) confirm this. In the fear that somebody will lightheartedly use 50 c.cm. of this substance over a period of three days I call your attention to the need for warning the readers of the leading article.

Incidentally, it would be interesting to learn what evidence there is for supposing that pentose nucleotides cause only redistribution and mobilization of preformed leucocytes.—I am, etc.,

London, W.1. A. PINEY.

Precision Method of Cephalometry and Pelvimetry

SIR,—Dr. Paul Cave (Sept. 18, p. 375) has replied to my criticism of his article on cephalometry and pelvimetry with such patience and competence that it is ungracious not to be satisfied, but I would be grateful for the opportunity of making some final comments on the subject.

The claims originally made for the application of his method in depth localization generally are abandoned in the reply, I am glad to note, and the only merits claimed are in the field of obstetrics. So far as the technical side is concerned, the original article described a tube-shift in the vertical direction from 30 to 60 in., which is modified in the reply to a shift from 30 to 40 in., and this avoids several of my criticisms, but, of course, also reduces the image-shift and makes accurate measurement more difficult. The actual error introduced with these new distances is, as Dr. Cave calculates, only a small fraction of an inch, which is probably not at all serious by itself, but it is surely unwise to advise the use of a method that starts off with even a small inherent error, which is certain to become multiplied by slight inaccuracies in technique and calculation, when other methods are not so handicapped and are, in theory at least, exact.

Comparison of the vertical and lateral tube-shifts does not uphold his claims; calculations may be made of pelvic or foetal measurements by a single formula in either case, and a lateral tube-shift can usually be made with very great accuracy, as most *x*-ray plants are provided with a sliding clamp on the tube stand to enable a definite shift to be made without making measurements or scale readings, which are, of course, needed in a vertical shift. His example of the disastrous effects of an error of some inches in a lateral shift is misleading, as the only possible error in moving the tube between fixed stops would be a minute fraction of an inch, while the accuracy of vertical movements depends on personal observation of scale marks, with the possibility of errors from parallax and obliquity as well as from human failings. Actually, with a lateral tube-shift, it is not necessary to know the tube-film distance, as the calculation in pelvimetry is one of simple proportion involving horizontal distances only.

I am sorry to impose on your space further, but I believe that the science of radiology should not be encumbered with doubtful methods of producing results which can be achieved by well-tried and accurate procedures, and I consider that in this case nothing is to be gained by advocating any departure from orthodox practice.—I am, etc.,

Hove. E. MILLINGTON, D.M.R.

Artificial Insemination

Sir,—The correspondence arising from Dr. Mary Barton's letter (Sept. 4, p. 312) has dealt only with the sterile husband. There is another aspect—that of the man whose desire to fulfil his function of fatherhood is thwarted by the infertility of the wife from disease local or general. Advice to adopt a child is not an answer to this problem.

The letter of Dr. Anne McCandless (Oct. 2, p. 414) raises an important question. The position of the professional woman, highly intelligent and physically fit, denied the opportunity of transmitting her abilities to future generations is indeed tragic both for herself and for the State. Whatever method were adopted the Church would no doubt oppose, and be supported by those medical men who so readily state that continence is harmless but never supply any scientific proof of this *ex cathedra* statement.—I am, etc.,

London, W.1. Pearse Williams.

Unity in the Profession

Sir,—Criticism is a healthy sign of interest, but it is unfortunately often ill directed and based upon ignorance. Mr. Donald Watson stated in his letter (Sept. 25, p. 405) that "Dr. Buchan was *chosen* to serve on the Representative Committee. Do you desire men of his outlook—control and regimentation—to be *elected* to the Negotiations Committee?" The obvious inference from his letter is that Dr. Buchan was elected by some part of the B.M.A.. If Mr. Watson will take the trouble to look at the *Journal* for March 20 last (p. 359), he will find that Dr. G. F. Buchan was one of the two Representatives of the Society of Medical Officers of Health, and was *not* chosen by the B.M.A. He presumably represents the views of the Society of Medical Officers of Health. The Representative Committee is not a committee elected by the B.M.A., though its composition was approved at the Special Representative Meeting held on March 31, 1943. The Royal Colleges, the Society of Medical Officers of Health, and the Medical Women's Federation elected representatives to serve on this committee.

In the medical profession there are many interests—general practitioners, consultants, teachers, women doctors, medical officers of health, the staffs of municipal hospitals, etc. It was thought, and, I submit, very wisely thought, by the Council of the B.M.A. that for a satisfactory solution of the immediate problem of planning a comprehensive medical service, or considering any Government plan, it would be better that all the varied sections of the profession should get together and present a united front. There was a movement by the Royal Colleges to represent the consultants, but they gave way for the common good and agreed to work through the Representative Committee. Many consultants feel that the Colleges might have looked after their particular interests better, but in doing this the general practitioners might have been let down. Similarly, the medical officers of health have special opportunities for presenting their views to the Ministry of Health, and might from a sectional point of view have done better by playing their own game. Had this anarchy in the profession developed the Government, in face of a divided profession, could have made what plans it wished with no effective opposition.

Mr. Watson will therefore find various sections and even conflicting views represented on the Representative Committee, and a certain amount of give and take is required. We shall not oppose whole-time salaried M.O.H.s, and they presumably will let the G.P.s settle what they want; in any case the M.O.H.s form a small minority. Dr. Buchan has proved of outstanding service to the Representative Committee; his knowledge of central administration and his exposure of the confusion and overlapping in the various Government Departments have been of inestimable benefit. It is to be hoped that in future criticism of the Representative Committee the critics will at least have troubled to study its composition and method of formation. It is, of course, open to any member to criticize the Council for joining this team instead of taking part in a "free-for-all" scramble, but I feel that on consideration Mr. Watson would not approve of the latter course.—I am, etc.,

Hove. H. J. McCurrich.

Medicine under State Control

Sir,—Dr. J. N. P. Davies's letter (April 17, p. 490) dealing with the relationship of the patient with the State in any comprehensive health service has been read with great interest and relief by a small number of Service doctors stationed far away and therefore unable to follow events at home as soon as they would wish.

It does seem that many of us who have now had four years' experience of Service medicine, and *not* from the viewpoint of the regular Service medical officer, are now well qualified to submit our views on the very important aspect of the patient's point of view of Service medicine, which, after all, is closely parallel to any comprehensive health service for civilians after the war. For instance, the methods available in the Services for the detection and prevention of those "socially dangerous diseases" which Dr. Davies cites are only one example of the fundamental difference between Service medicine and the ordinary system of voluntary organization for the treatment of disease.

It follows, as Dr. Davies so clearly points out, that any reorganization of the medical profession and the health services will affect the great democratic public. Are they, the patients, aware of the sense of freedom they are going to lose? The possible penalties they may incur if they *refuse* treatment? The certain loss of a portion of their cherished right and privilege of professional secrecy, when the doctor has his "quarterly returns" to fill in? The criminal view that must be taken by the State of neglect and failure to carry out treatment calculated to restore the patient to health in the shortest possible time in order that he may return to work? And also the slightly lowered prestige of the family doctor if he becomes completely a servant of the State, thereby losing some of his independence, which has been treasured in the past as much by his patients as by the doctor himself? Let the legislators take care that they, and the vast number of individuals they represent, are aware of all the implications that the phrase "comprehensive health service" means.

Finally, as a practical suggestion, would it not be possible to co-opt on the Representative Committee two members from each of the three Services, chosen from officers who have served abroad and are at present stationed at home and likely to remain there for the next year? Apart from their own views they would come with those of their present patients—the men and women in the Services—who have *their* ideas about a State Medical Service.—I am, etc.,

J. B. W. Hayward, M.B., Ch.B.

The Classics in Medical Education

Sir,—It is a truism to say that both the medical and pre-medical curricula are overcrowded. Even so, I feel sure there are many doctors (and I am of their number) who echo Dr. Clark-Kennedy's plea for the incorporation (through the study of English translations) of the historical and philosophic content of the classics. On the other hand, I doubt if many are anxious to do it by making compulsory the study of Latin itself.

The immediate difficulty is that for the schoolboy on the modern side such Latin literary masterpieces as form his study are not employed for this purpose at all, but are used as a method of learning Latin grammar. As one scholar has it: "The Commentaries usually serve not as military history, but as a whetstone for gerund grinders." This, no doubt, is a good way of learning Latin, but is a slow and poor way of learning how the Romans thought and acted. About six years of such study has left me to-day with the ability to translate the less idiomatic Latin quotations found in scientific papers—which, by conversations on this point with them, is not below the average of my medical contemporaries. When I have protested to schoolmasters in conversation that for a surgeon this is rather slight return for six years' reasonably assiduous work at a formative period, I am usually met with the following arguments:

1. That, being difficult to acquire, "*Latin is mental discipline.*" The best answer to this is the remark of a bored schoolmaster at a Head Masters' Conference: "It doesn't matter what you teach a boy so long as he doesn't like it." Dr. Norwood at Harrow, following this thesis, made German an alternative to Latin.

2. "*Latin is a guide to the etymology of scientific terms.*" As I learnt more of the etymology of anatomical terms in ten minutes' study of the glossary in Buchanan's *Anatomy* than in six years' Latin schooling, I find this argument unconvincing.

In 1641 John Amos Comenius, the Czech educational reformer, visited England and revolutionized the lot of schoolchildren by insisting that they be taught not in Latin but in the mother tongue. Is there any hope that in this generation the process may be brought to its logical conclusion, and that for scientific occupations the content rather than the language of the classics be taught? I doubt it.

The trouble is that too many schoolmasters can still teach nothing else, and that for them a knowledge of the language of the classics and sound scholarship are synonymous. Their position is that of Dr. Arnold of Rugby, so aptly described by Lytton Strachey:

"Dr. Arnold felt that the Greek and Latin languages seemed given for the purpose of forming the human mind in youth . . . there was something providential about this, both from the point of view of the teacher as well as the taught. If Greek and Latin had not been 'given' in that convenient manner Dr. Arnold, who had spent his life in acquiring these languages, might have despaired that he had acquired them in vain."

—I am, etc.,

Leeds. JOHN FOSTER.

Obituary

E. N. NASON, M.D.

We regret to record the death on Sept. 18 at Nuneaton of Dr. E. N. Nason, a well-known practitioner in the Birmingham district, and for a number of years a member of the Council of the B.M.A.

Edward Noel Nason, son of Dr. Richard Nason of Nuneaton, was born in 1862. He was educated at Shrewsbury School and won a scholarship at Downing College, Cambridge. After obtaining his B.A. degree with honours in 1885, he completed his clinical studies at the London Hospital and took the Conjoint Diploma in 1886, subsequently proceeding to the Cambridge M.B. in 1887 and M.D. in 1897. After acting as house-surgeon at the London Hospital and at the Norfolk and Norwich Hospital, he was appointed resident surgeon at the General Hospital, Birmingham. Though equipped by nature and training to embark on the career of a consulting surgeon, it was ordained that he should join his father and a younger brother in the family practice. The name of Nason thus became associated with a practice in Nuneaton for nearly one hundred years. On embarking in practice Nason was not content until he succeeded in obtaining a hospital to serve the needs of the populous industrial district in which he practised. He became the mainspring in the work of the hospital, and from small beginnings lived to see the institution he had fathered steadily grow into a prosperous and well-equipped hospital of over a hundred beds, complete with nurses' home and maternity wing. For many years he continued to carry out the bulk of the surgical work himself, and was a tower of strength in all matters connected with the administration and running of the establishment. Always a keen man in any matter affecting the profession, he was in turn president of the Birmingham Branch and for two periods a member of the Council of the B.M.A. He rarely missed a meeting either in Birmingham or of his own Nuneaton and Tamworth Division. He also took a keen interest in all local affairs, particularly in their bearing on the public's health, and was for a time a member of the Warwickshire County Council. He leaves a widow and two sons—one of whom is serving as a chaplain in the Royal Navy, the other in the Army—and two daughters.

As a former colleague I would like to add a few words of personal tribute to a man who served his profession and the neighbourhood in which he lived so faithfully and so well. Nason was a man of strong convictions, and he would never allow his own self-interest to swerve him from a course he considered to be right. Thus, a strong opponent of the National Health Insurance Act at its inception, he and his brother refused for many years to join the panel, even though the financial benefit to be derived from doing so would have been considerable. He held very high ideals of professional conduct and abhorred above all else the commercializing of the profession. Of a naturally reserved disposition, he possessed a quiet but keen sense of humour, and was one of the kindliest men one could meet. He was always ready to help a colleague either with a difficult case or with advice in the knotty problems which arise in practice, and such advice he was particularly well equipped to give; of a deeply sympathetic nature it was yet entirely foreign to him at any time to be gushing. He was never happier than when he was in the garden he loved and tended so well. I have vivid recollections on many occasions of seeking him out there and not seeing him at first, finally discovering him hidden in one of his apple trees busy with the pruning knife. He thoroughly enjoyed a day out with gun or rod. He was a staunch churchman, and served for years as churchwarden of St. Mary's, close to his home. His knowledge in professional matters was profound, and he kept it up to date by diligent reading of the *B.M.J.* He was always surprising one by the depth of his knowledge of pathology.

Nason was a doctor of the very best type, one of those who by the example of his own daily life wielded an unconscious influence over those around him. If the apprenticeship system should ever return, one could wish for nothing better than that the embryo practitioner should serve his term with a man such as he.

C. J. G. T.

RALPH BODKIN MAHON, M.D., M.Ch., F.R.C.S.

With the death of Emeritus Professor R. B. Mahon there has passed an outstanding figure from the medical profession in Galway, who for a long period took an active part in the local and central work of the British Medical Association in Connaught, in Dublin, and in London.

Ralph Bodkin Mahon, son of Nicholas Mahon, a Galway practitioner, was born in April, 1862, and had a brilliant student career in Galway and Dublin. In 1885 he graduated M.D. and M.Ch. of the old Royal University of Ireland, with first place in the first-class honours list, after winning a junior scholarship and an exhibition at Queen's College, Galway, and a senior scholarship in anatomy and physiology. He continued his studies in London, Berlin, Munich, and Berne, and on returning to Ireland became demonstrator of and assistant lecturer on anatomy at Queen's College, Galway, and then demonstrator of anatomy and assistant to the professor of physiology at Queen's College, Cork. In 1896 he obtained the F.R.C.S.Eng., and after holding a clinical post at the Eye, Ear, and Throat Hospital at Cork went back to Galway, where he was elected visiting surgeon to the Central Hospital. Some time later he succeeded to the chair of the practice of medicine at University College, Galway, which had become in 1908 a constituent college of the National University of Ireland. He held a temporary commission in the R.A.M.C. during the last war as surgical specialist to the Southern Military Hospital, Dartford.

Prof. Mahon joined the B.M.A. 54 years ago, and his colleagues made him president of the Connaught Branch in 1923-4; he served for three periods (five years in all) on the Central Council, and was a member of the Irish Committee of the Association in 1923-5. He wrote a number of papers for the *British Medical Journal*, and kept up his acquaintance with professional life in London and Dublin by remaining a Fellow of the Royal Society of Medicine and of the Royal Academy of Medicine in Ireland. He had travelled widely in South America, Canada, the United States, and Norway, and was devoted to shooting, fishing, and golf.

Dr. HAROLD ERNEST GAMLEN died towards the end of July at North Cheriton, near Templecombe, Somerset, at the age of 72. He studied medicine at Newcastle-upon-Tyne and won the Gibb Scholarship in Pathology in 1892; in the following year he graduated M.B., B.S. of Durham University and took the D.P.H. in 1895. Dr. Gamlen specialized in *x*-ray work and was for many years radiologist to the Sunderland Royal Infirmary and physician to the *x*-ray, electrical, and massage departments of the Royal Victoria Infirmary, Newcastle. He was also roentgen surgeon to the Cameron Hospital and the Hartlepools Hospital. During the last war he served with the rank of major, R.A.M.C., at No. 11 General Hospital, B.E.F., and was consulting radiologist to the Indian Expeditionary Force. On retiring from practice he made his home at North Cheriton.

Dr. JAMES MURDOCH MCGILL died on Aug. 23 at the age of 78 at Bonnyrigg, Midlothian. His father, Dr. John Finlay McGill, was a general practitioner at Coylton, Ayrshire, and between them father and son for nearly a hundred years attended to the medical needs of the people of Coylton, Stair, and Annbank. After education at the Ayr Academy and at Edinburgh University James McGill graduated M.A. in 1885 and M.B. in 1889, and practised in his native town until 1931. When he gave up active work Dr. McGill had a public presentation contributed to by over 800 homes in the parish and far beyond; this testified to the respect and esteem in which he was held in the neighbourhood. The Right Hon. James Brown, in making the presentation, said that Dr. McGill was their neigh-

bour and their friend in every sense of the word, and everyone present would like him to know how much they respected and loved him and how much they grieved at the parting.

Dr. FRANCIS DIXON, who had practised at Eastwood, Notts, for nearly half a century, died recently in his 88th year. Born at Langley in 1855 he studied medicine in Edinburgh and Glasgow, and qualified as L.R.C.P., L.R.C.S.Ed. in 1878, and took the L.S.A. a year later. Dr. Dixon was medical officer of health to the Eastwood Urban District Council for many years up to the time of his retirement from active work in 1926. A fine all-round cricketer in his younger days, he was invited to serve on the committee of the Notts County C.C., and did good work in that capacity for over 40 years. He joined the British Medical Association as long ago as 1882.

We regret to announce the death on Aug. 28 of Mr. GEORGE AUBREY JELLY, who practised as an ophthalmologist at Lytham, Lancs, for many years. Born at Middleton, Lancs, on July 2, 1872, son of the Rev. James Jelly, he studied medicine at Edinburgh and Manchester and qualified in 1894, after which he served as house-surgeon at the Royal Eye Hospital, Southwark. He took the F.R.C.S.Ed. in 1899, and was for some time assistant surgeon at the British Ophthalmic Hospital, Jerusalem. Returning to this country he was appointed honorary ophthalmic surgeon to the Bury Infirmary and to St. John's Hospital for Diseases of the Ear and Eye in Manchester. During the last war Aubrey Jelly served with the rank of temporary captain in the R.A.M.C. as ophthalmic surgeon to the 3rd Western General Hospital, Cardiff; later he became oculist to the Cheshire County Council. He joined the B.M.A. in 1902 and held office as chairman of the Blackpool Division in 1927-8.

News has reached this country from America of the death of Mr. CLIFFORD WHITTINGHAM BEERS, whose name is well known as that of a reformer in regard to the treatment of the insane, not only in the United States but all over the world. Clifford Beers had liaison with over 50 countries through the association he formed in the U.S.A.—the National Committee for Mental Hygiene. An ex-patient himself, he wrote in 1907 the book *A Mind that Found Itself*, which has gone through many editions and reprintings. Through this autobiography and by other means he enlisted the interest and help of many distinguished people, medical and other, in supporting the work of his society, notably Prof. William James in America and Sir Maurice Craig in England. William James wrote to the author: "You have handled a difficult theme with great skill and produced a narrative of absorbing interest to the scientist as well as layman. It reads like fiction, but it is not fiction . . ." *A Mind that Found Itself* is indeed a remarkable book and its effect has been far-reaching; it made a profound impression upon the medical profession as well as upon the general public. Its logical outcome was the founding of the National Committee for Mental Hygiene in 1909 and the establishment in 1917 of the quarterly journal *Mental Hygiene*. The movement spread from the United States to Canada and to Europe. In this country Sir Maurice Craig was a founder of the National Council for Mental Hygiene, which is now forming part of the Provisional Council for Mental Health, with a view to possible further amalgamation after the war with the Child Guidance Council and the Central Association for Mental Welfare.

Universities and Colleges

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated:

M.D.—R. B. Knowles.

FINAL M.B., CH.B.—*Parts II and III*: J. W. Greaves, A. Pickin, Winifred M. Smith.

UNIVERSITY OF ABERDEEN

At a graduation ceremony on Sept. 29 the following medical degrees were conferred:

M.B., CH.B.—[1] W. Burnett, [2] R. N. Johnstone, [2] M. R. Milne, J. R. Anderson, R. J. Anderson, Eba C. Baird, Sheila M. Baker, J. B. Bittiner, H. Brebner, G. W. D. Campbell, Mary E. Chalmers, G. C. Chessor, C. Clark, Catherine M. Coull, I. C. Cowan, M. M. Craig, Thelma C. Cruickshank, Sheila R. Dalgliesh, W. J. Dawson, R. C. MacD. Dingwall, G. A. Findlay, D. A. Forbes, A. G. Fraser, I. A. Fraser, J. Gardiner, Helen E. Gordon, J. B. Gordon-Russell, C. Grant, Mona Griffin, F. W. Henderson, Valentine M. Husband, I. D. Innes, Kathleen M. Knox, Nancy Laing, P. Leslie, P. G. McBoyle, D. J. McCombie, Mary G. McDonald, Margaret J. McHardy, A. E. Macintosh, D. G. Mackay, N. R. Mackay, D. N. Mackinnon, A. I. Maclean, W. F. Macleod, Antoinette M. H. MacMahon, Ishbel M. Macrae, J. L. A. McVicker, D. W. Mathieson, Elizabeth H. Milne, C. G. R. More, R. E. P. Nutten, R. A. Peat, H. McL. Raffan, Sheila T. Ritchie, Marguerite McD. Scott, W. G. Shiach, R. G. Simpson, W. D. Sinclair, J. A. McC. Smith, A. L. Speirs, A. J. Spence, Laura B. C. Thompson, I. G. Thomson, W. G. Todd, D. E. Walker.

[1] First-class honours. [2] Second-class honours.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Surg. Lieut. W. L. MACKENZIE KING, R.C.N.V.R., nephew of the Canadian Prime Minister, is stated by Reuter to be one of the nine officers missing from the *St. Croix*.

Missing, believed killed at sea.—Lieut.-Col. H. Foxton, M.C., R.A.M.C., Major C. Ryan, R.A.M.C.

Missing, presumed killed.—Prob. Temp. Surg. Lieut. C. M. Davies, R.N.V.R., Temp. Surg. Lieut. G. C. Glennie, R.N.V.R.

Died on Active Service.—Major R. S. Gibson, M.C., R.A.M.C.

Killed.—Capt. L. Herbert, R.A.M.C.

Previously reported missing, now presumed killed in action.—Capt. H. B. Thomson, R.A.M.C.

Prisoners of War.—Lieut.-Col. J. C. Collins, R.A.M.C., Surg. Lieut. J. P. Corcoran, R.N., War Subs. Capts. J. A. Mark, E. H. Markby, T. B. Smiley, and R. B. Wallace, D.S.O., M.C., and Lieut. E. C. Vardy, R.A.M.C.

Medical Notes in Parliament

Mass Radiography

Mr. BROWN, replying on Sept. 23 to Mr. Ness Edwards, said he was not aware of any substantial disagreement with the recommendation of the M.R.C. Committee on Tuberculosis in Wartime, which reported in September last year in favour of the controlled use of mass radiography as a means of detecting tuberculosis at an earlier and more controllable stage of the disease. It had never been suggested that mass radiography could replace clinical examination: its function was to indicate the cases in which clinical examination was desirable.

Alien Doctors and Dentists

Mr. BEVIN stated on Sept. 23 that from a detailed scrutiny of the registration cards of 5,000 German and Austrian men in this country it was found that a large proportion with high professional and technical qualifications were employed in their normal occupations. Of 184 physicians and surgeons all but 9 were employed in the medical profession; of 55 dentists all but 2 were employed as dentists; all dental mechanics were engaged in their trade.

Local Authorities' Powers of Milk Inspection

Mr. KENDALL asked the Minister of Health on Sept. 23 if it was intended that powers for safeguarding the quality of milk at present vested in local authorities should be transferred to the Minister of Agriculture. Mr. ERNEST BROWN replied that the scope of the powers proposed in the recent White Paper to be transferred to the Minister of Agriculture was at present the subject of discussions. The object was to make the Minister of Agriculture responsible for conditions under which milk was produced at the farm, but the existing powers of local authorities in respect of milk infected with disease or adulterated milk would not be affected.

Slum Conditions in Industrial Premises.—On Sept. 21 Miss HORSBRUGH informed Mr. Craven-Ellis that the Ministry of Health had no up-to-date records of the extent of slum conditions in commercial buildings, warehouses, works, and factories. The conditions in buildings of the type mentioned were not the responsibility of the Ministry of Health. Under Section 25 (1) of the Housing Act, 1936, however, a local authority might include in a clearance area buildings other than houses which, for the same reasons as justified the condemnation of the houses, were dangerous or injurious to the health of the inhabitants of the area.

Sun-ray Lamps in Factories.—On Sept. 21 Mr. HANNAH asked the Minister of Health why some firms and not others were permitted to purchase sun-ray lamps for the benefit of their workers employed on night shifts, although medical men urged their use in all cases where they could be employed, and the Ministry of Labour was insisting on the maximum effort for welfare work. Miss HORSBRUGH replied that the Ministry of Health acted as adviser to the Board of Trade on applications by factories for licence to acquire sun-ray lamps. In respect of certain types of apparatus the Ministry's medical advisers had to consider whether adequate medical and nursing staff were available at the premises to ensure that treatment was given under proper supervision. If these conditions were fulfilled it was usual to recommend approval to acquire the apparatus provided alternative facilities for the treatment were not readily available.

Inoculation in the Services.—Answering Mr. Leach on Sept. 22, Mr. CHURCHILL said inoculation was voluntary in all three Services and this was well known. In the Navy, however, in the interests of the health of ships' companies it was necessary to refuse to those who had not been inoculated permission to land in ports where there might be danger of contracting any of the diseases against which this treatment was aimed.

No. 38

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Sept. 25.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943 (a)	(b)	(c)	(d)	(e)	1942 (Corresponding Week) (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	49	6	10	—	2	70	5	13	2	—
Deaths		—	—				—	1		
Diphtheria	757	39	167	103	25	807	43	209	64	23
Deaths		2	—	3	—	21	—	4	3	—
Dysentery	270	42	71	1	—	237	13	41		—
Deaths				—	—			—	—	—
Encephalitis lethargica, acute	4	—	—	—	—	2	—	—	1	—
Deaths		—					1			
Erysipelas			63	6	3			56	8	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				140					89	
Deaths	61	10	16	30	—	70	10	15	20	6
Measles	466	36	31	9	3	3,356	271	170	15	10
Deaths		—	1	—	—	2	—	1	—	—
Ophthalmia neonatorum	70	2	12		—	112	3	18		1
Deaths										
Paratyphoid fever	14	2	1	—	—	13	1	—		—
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	356	14	3	1	1	459	32	10		—
Deaths (from influenza)	9	1	3	—	—	6	—	—	—	1
Pneumonia, primary			135	11				125	11	2
Deaths		15		8	9		—		3	6
Polio-encephalitis, acute	2	—				7	—			
Deaths		—					—			
Poliomyelitis, acute	8	—	—	3	—	32	1	—	24	—
Deaths		—					—			
Puerperal fever		—	15			2	2	11	2	—
Deaths										
Puerperal pyrexia†	149	10	5	1	2	159	7	15		—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,772	260	337	50	69	1,963	135	394	54	41
Deaths	—	—	1	—	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	3	—	2	11	3	9	—	6	12	6‡
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,480	109	167	49	9	938	77	21	56	3
Deaths	13	1	4	—	—	13	2	1	1	—
Deaths (0–1 year)	313	45	55	61	14	318	27	76	36	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,658	534	543	192	99	3,549	461	523	164	114
Annual death rate (per 1,000 persons living)			12·2	12·6	§			11·8	10·9	§
Live births	6,212	709	868	435	269	5,901	673	809	346	258
Annual rate per 1,000 persons living			17·7	28·6	§			16·7	23·1	§
Stillbirths	197	23	30			233	23	27		
Rate per 1,000 total births (including stillborn)			33					32		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Includes paratyphoid A and B.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the trend of the infectious diseases of childhood remained unchanged. Notifications of scarlet fever and diphtheria rose by 133 and 34, and those of whooping-cough and measles fell by 51 and 25 respectively.

The only noteworthy local variations were an increase of scarlet fever in Lancashire by 40, and a fall in whooping-cough in Yorks West Riding by 50 cases.

The notifications of dysentery were 2 more than the high level of the preceding week. New outbreaks occurred in Wiltshire, Swindon M.B. 20, and in Norfolk, St. Faith and Aylsham R.D. 12. Only one case was recorded in Cumberland, compared with 54 in the preceding week. The largest of the existing centres of infection were: London 42; Kent 36, Gravesend M.B. 10, Rochester M.B. 16; Devonshire 16, Exeter M.B. 16; Gloucestershire 16, Bristol M.B. 15; Yorks West Riding 16, Harrogate M.B. 10; Lancashire 15; Middlesex 14; Hertfordshire 14; Warwickshire 9.

In *Scotland* a fall was recorded in the incidence of most infectious diseases. The largest decreases were for whooping-cough 54, pneumonia 32, and dysentery 17 cases.

In *Eire* the rise in diphtheria was general throughout the country. Of the 140 cases of diarrhoea and enteritis, 127 were recorded in Dublin C.B.

Quarterly Returns for England and Wales

The birth rate during the second quarter of 1943 was 17.5, compared with an average for the five preceding second quarters of 15.7, and the rate was the highest recorded in any June quarter since 1926. Infant mortality was 46 per 1,000 live births, the lowest rate ever recorded for a second quarter, and it was 9 below the average of the 10 preceding June quarters. Stillbirths were 3.0% of the total births registered. The general death rate was 11.0 per 1,000, compared with 11.3 for the second quarter of 1942, and 12.0 for the average of five years before 1942. The natural increase, excess of births over deaths, was 67,457, compared with 50,685, 7,228, and 46,980 for the second quarters of the three preceding years. Persons who married numbered 37,610 fewer than during the June quarter of 1942, and 38,668 fewer than the average for the five second quarters before 1942. The marriage rate, 15.9 per 1,000, is lower than that in the second quarters of the years preceding the war.

Quarterly Returns for Northern Ireland

A birth rate of 26.7 per 1,000 was recorded during the second quarter of 1943. This rate was 4.4 above the average for the second quarters of the five years 1938–42. Infant mortality was 74 per 1,000 registered births, and was 2 above the five-year average. The general death rate was 13.3, and was 1.1 below the average of the five preceding second quarters. Of deaths of children under 2 years, 105 were attributed to diarrhoea and enteritis, compared with the five-year average of 70. Deaths from pulmonary tuberculosis numbered 220 and from other forms 92, the former being 21 below the average of the June quarters of 1938–42, while the latter was 14 above. The marriage rate was 8.1 per 1,000; this was 1.8 below the rate for the corresponding quarter of 1942, but 0.3 above the average of the second quarters for 1938–42.

The Week Ending October 2

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,956, whooping-cough 1,583, diphtheria 724, measles 465, acute pneumonia 409, cerebrospinal fever 30, dysentery 337, paratyphoid 7, typhoid 7

Daube (*Klin. Wschr.*, 1942, **21**, 679) describes four cases of "pervitin psychoses" observed at the Hamburg Psychiatric Clinic. In the first case it seems that ambition and increased demands on the capacity of the addict, together with general asthenia, provoked the choice of pervitin. The second patient was attracted mainly by the euphoric action of the drug. In the third physical injuries and strains (severe *x*-ray burns, amputations, plastic operations) were the main factors; and in the fourth case abnormal tendencies were already present in the direction of a hyperthymic impulsiveness, affective unbalance, and increased "impatience drive." Besides the increased physical efficiency hoped for from the drug, it was also used as a sexual stimulant. None of the four cases had any previous history of psychosis, and in none of the cases could a hereditary defect be ascertained. Addiction developed very rapidly. The psychotic disturbances themselves showed many common features. At first there developed a pronounced anxiety state occasionally coloured by irritability. Combined with this a wealth of assertive and paranoidal ideas were expressed with illusions and hallucinations. The psychosis disappeared fairly rapidly.

Medical News

The Royal Sanitary Institute has arranged a sessional meeting in the Pump Room, Bath, on Saturday, Nov. 6, at 10.15 a.m., when there will be discussions on food standards and on the post-war housing problem.

A meeting of the Clinical Society of the Royal Eye Hospital will be held at the hospital, St. George's Circus, Southwark, S.E., on Friday, Nov. 5, at 4.30 p.m., when a talk will be given by Mr. Harvey Jackson, F.R.C.S., on orbital tumours.

The British Institute of Philosophy announces a lecture entitled "Community Purpose and the Lessons of Nazism," to be delivered at University Hall, 14, Gordon Square, W.C.1, on Friday next, Oct. 22, at 4.30 p.m., by Prof. J. W. Harvey of Leeds University. Cards of admission may be had free of charge from the Director of Studies at University Hall.

The Nutrition Society has arranged a whole-day conference on "Post-war Nutritional Relief" at the London School of Hygiene and Tropical Medicine, Keppel Street, London, W.C., on Saturday, Nov. 6. The chair will be taken by Lord Horder, and papers will be read by Prof. J. R. Marrack ("Past Experience and Present Position"), Dr. J. Hammond, F.R.S. ("Problems of Production in Relation to Post-war Nutritional Relief"), Miss E. M. M. Hume ("Opportunities for Nutritional Research in the Work of Relief"), and others. Further details of this meeting, and of the Nutrition Society, can be obtained from the hon. secretary, Dr. Leslie J. Harris, Nutritional Laboratory, Milton Road, Cambridge.

A conference on Mental Health will be held in Caxton Hall, Westminster, on Friday, Oct. 29, under the auspices of the Provisional National Council for Mental Health (39, Queen Anne Street, W.1). The conference will be opened at 10.30 a.m. by the Minister of Health, and at the morning session Sir Otto Niemeyer will speak on the development and extension of voluntary mental health services, Dr. Thomas Beaton and Mr. E. R. Davies on mental health work of local authorities, and Mr. J. Duncan on the residential school and its place in the education of defective and subnormal children. At the afternoon session, with Sir Farquhar Buzzard in the chair, Dr. J. S. I. Skottowe will speak on the effect of war conditions on the mental health of the community, and Miss L. G. Fildes, Ph.D., on selection and classification of homes and hostels in relation to the needs of the individual child.

The Socialist Medical Association will hold a conference on National Service for Health on Sunday, Oct. 17, at 3 p.m., in the Conway Hall, Red Lion Square, W.C., with Dr. H. Joules in the chair. The speakers are Mr. Hector McNeil, M.P., and Mr. Somerville Hastings, F.R.C.S.

The North Kent Section of the British Dental Association will hold a meeting at the Star Hotel, Maidstone, on Friday, Oct. 29, at 6.45 p.m., when Dr. Wilfred Fish will speak on the mechanism of systemic response to infected foci.

Through the generosity of some leading firms in the country a medical rehabilitation centre is being established in Sussex, at Roffey Park, Horsham, with accommodation for 120 patients. The Ministry of Labour and other Government Departments are collaborating, and the chairman of the organizing committee is Lord Horder. Among the functions of the centre will be instruction in industrial health for doctors, social workers, and nurses; and facilities will be provided for research on social and industrial medicine.

The British War Relief Society of the United States has decided to give £30,000 to the Queen Victoria Cottage Hospital, East Grinstead, Sussex, which specializes in plastic facial surgery. The gift will be a memorial of the society's work in this country during the last four years. In 1942 alone the society shipped to Britain 7,900 tons of material, and it has given 312 ambulances and motor vehicles and 1,000 mobile kitchens; it also equipped the American hospital at Oxford.

The Insignia of the Fourth Class of the Order of El Istiqlal has been conferred upon Dr. S. A. Jones, medical officer in the Arab Legion, in recognition of valuable services rendered by him.

Dr. E. A. Knappett has been commended for brave conduct when an aircraft crashed and caught fire.

A Swiss Society of Psychology has recently been founded on the initiative of Prof. Piaget of Geneva, Prof. C. G. Jung of Kusnacht, Dr. O. Forel of Prangins, and Dr. Morgenthaler of Muris.

An institute for typhus research, named after Emil von Behring, has recently been opened at Lemberg, and a special typhus institute has been created in Dresden for the wholesale preparation of typhus vaccine.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The Editor, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1.

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ANY QUESTIONS?

Kraurosis Vulvae

Q.—*In some recent corespondence about the use of oestrogens it has been stated that the dosage should not exceed 1 mg. Cases of menopausal kraurosis vulvae appear to need much larger doses for their resolution, and still more so the case occurring in a younger woman after oophorectomy. Could you give some guidance on this point?*

A.—In the course of the correspondence referred to it is stated (*Journal* p. 244) that "symptoms in women of menopausal age which do not respond to less than 1 mg.—*other than such late sequelae as atrophic vaginitis*—are not due to ovarian deficiency." A considerable portion of the letter in question was devoted to pointing out that the threshold of sensitivity to oestrogen varies greatly at different phases of the female life span. During the "menopausal age," when the woman is actually undergoing gradual oestrogen deprivation, she is relatively sensitive to oestrogen, and therefore quite small doses (i.e., less than 0.5 mg.) are effective in relieving hot flushes, etc. Kraurosis vulvae is a post-menopausal condition resulting from relatively long-continued oestrogen deprivation and therefore requires higher dosage. The severity of the condition depends primarily on the length of time the tissues have been deprived of oestrogen and not on whether the menopause was physiological or resulting from surgical removal of the ovaries. Dosage depends, of course, on the severity of the condition. A course lasting not longer than 2 months and preferably not more than 3 or 4 weeks of 5 mg. of stilboestrol or natural oestrogen daily usually relieves the kraurosis for a period of a year to eighteen months. An alternate method of administration is to implant a 50-mg. pellet of oestrogen subcutaneously and remove the remnant after 1 to 2 months. Uterine haemorrhage may occur during such high-dosage therapy.

Tuberculosis in Children

Q.—*It is stated that pulmonary tuberculosis is rare below the age of 7, although glandular tuberculosis is common. Yet T.B. infection—as determined by the Mantoux test—in children from birth to 5 years is five times greater in children who are contacts with sputum-positive cases than in those who are non-contacts. What tissue or organ does the human type of tubercle bacillus invade in the Mantoux-positive contact child?*

A.—Tuberculous infection in the first five years of life is a much more fatal disease than it is in later childhood. Blacklock (M.R.C. Spec. Rep. Ser., No. 172, London, 1932) found that over 95% of children up to 3 years of age in whom tuberculosis was present at necropsy died as a result of that infection. About four-fifths of the fatal cases of tuberculosis in childhood are due to infection with the human type of tubercle bacillus. Intimate child contacts of cases of "open" tuberculosis are most often infected by inhalation. The primary lesion is usually a localized patch of bronchopneumonia (the Ghon focus) with secondary infection of the tracheo-bronchial (hilar) glands. The primary lung lesion does not caseate as a rule, but with advancing age of the child shows instead an increasing tendency to heal, fibrose, and calcify. Other children, particularly at the crawling stage, acquire an abdominal tuberculosis by swallowing infected dust and dirt—*l'infection de touche à tout* of French authors—while others, again, develop surgical tuberculosis—infection of glands, bones, and joints.

About half of these surgical infections are due to the human type of bacillus; they are not, as is too often believed, preponderatingly due to the drinking of tuberculous milk. Thus, surviving children infected by intimate contact with cases of open tuberculosis have a variety of tuberculous lesions which may or may not be accompanied by clinical or radiological evidence of infection. The adult type of pulmonary tuberculosis with caseation and cavitation is seldom seen in childhood, because it represents a type of lesion occurring in an individual already "tuberculized."

Feeling the Cold

Q.—*Some people complain that they feel the cold to a much greater degree than does the normal person, although otherwise they appear to be in good general health. Even the wearing of thicker woollen clothing does little to obviate the trouble. This is a very real problem for these people in days of fuel economy, etc. Is there any real treatment for such cases, such as the daily administration of halibut-liver oil? Or must their reaction to cold be considered "normal" for them?*

A.—"Feeling the cold" depends upon at least three factors—psychological, vascular, and endocrine. Probably the first is the most important. Many people have been taught from their earliest years to regard being cold as a serious hardship. This is particularly true of well-to-do people brought up in large towns. It is possible to train oneself to neglect all but the most serious degrees of cold.

Although the vascular response to cold has been studied in great detail, very little work has been done on individual differences in reaction. Sir Thomas Lewis has postulated a condition in which the normal peripheral vasoconstriction which occurs when the body is chilled fails to pass off with normal speed. He ascribes chilblains to this cause.

The most important endocrine glands involved are the adrenal medullae and the thyroid. The first reaction to chilling of the body is a discharge of adrenaline and consequent peripheral vasoconstriction. Of more "chronic" importance is the control by the thyroid of the degree of intracellular oxidation, and hence of heat production. The hypothyroid individual feels the cold acutely because his temperature is normally low and is easily made lower. He always has cold hands and feet because his heat-regulating mechanism is attempting to conserve his body heat by cutting off the heat loss from the extremities. He often wears an astonishing amount of clothing and cannot sleep without a hot-water bottle. A case has been recorded of a man who in the height of summer could only travel in a closed and heated car, wearing a heavy overcoat.

Treatment should be conducted along the lines indicated by these facts. The prescription of small doses of thyroid (1 gr. a day, working up gradually and watching for signs of intolerance) works dramatically in genuinely hypothyroid cases. As hypothyroidism may not be clinically obvious, it is worth while trying thyroid provided that the patient can be kept under careful observation while the dose is being determined. Halibut-liver oil is quite useless. Nicotinic acid might be worthy of trial provided that it is borne in mind that the cold feet may be a beneficent reaction to a low blood temperature and that in some circumstances it may be inadvisable to interfere.

Arthritis at Menopause

Q.—*A woman at the age of the menopause has painful swelling of the small joints of the hands of a month's duration. She is edentulate, the throat and nose are normal in appearance, she does not suffer from dyspepsia, and the urine is sterile. Her general appearance does not suggest thyroid dysfunction. What is the treatment? What are the prospects of cure?*

A.—Fuller details are necessary for a definite opinion in this case, especially the erythrocyte sedimentation rate as an indication of an infective process. It is not stated which of the small joints of the hands are affected. It is a point of importance in diagnosis that infective or rheumatoid arthritis rarely if ever shows itself first in the terminal phalangeal joints, whereas Heberden's nodes, a form of osteo-arthritis, always appear there; the opposite is the case for the proximal joints except the carpal joints of the thumbs. It seems most probable that the condition is one of endocrine origin, and small doses of stillboestrol are often effective in giving relief. Locally, contrast baths for the hands will be found beneficial.

Irritation of Ear in Pregnancy

Q.—*A young woman has symptoms of marked irritation in the left ear. She is six months pregnant and has had this condition for the last two months. After syringing a little wax out of the ear, the external auditory meatus was seen to be slightly red and scaly in parts; no discharge of any sort was present; the drum was quite normal in structure apart from slight congestion. 2% aqueous gentian violet relieves the irritation temporarily. Is it possible that an endocrine factor is present in the causation of this otitis externa? In view of the relief afforded in kraurosis vulvae by oestrogen therapy, I wondered (1) whether there would be any danger in applying an oestrogen ointment to this girl's external auditory meatus; (2) whether, if there is no danger, any improvement is likely to ensue; (3) what type of ointment would be best?*

A.—Kraurosis vulvae is essentially an atrophic lesion associated with oestrogen deprivation; oestrogen therapy is therefore reasonable and beneficial. During pregnancy the organism is flooded with oestrogen, and, even though a large proportion is in a biologically inactive state, there is certainly no evidence of oestrogen deficiency. Oestrogens have been used for various skin lesions, both in pregnant and non-pregnant women, but their value is not proven except perhaps in cases of acne at puberty or the menopause, when there may be some oestrogen deficiency. In the case quoted there is little if any scientific basis for oestrogen therapy and a good response is unlikely. In my opinion it would be more satisfactory to approach the case from an aural or dermatological, rather than an endocrinological, standpoint. If, however, the inquirer would like to try an oestrogen ointment, it could not be harmful in any way. Oestrone and oestradiol benzoate ointments are supplied by most of the firms specializing in endocrine products and are available in tubes. A little (e.g., 0.5 g. of ointment) could be rubbed into the previously cleansed affected area once or twice daily.

A Buttock Wound

Q.—*I was recently discussing with a colleague what might be the ideal treatment for a rather difficult wound which I encountered. I thought you might be able to give some information in your "Any Questions" section. The wound was made by a small shell-fragment which traversed the buttock from above downwards, the exit wound being in the gluteal fold. The track was tubular, about 6 inches long, and about 3 inches deep from the skin in its centre. The entrance and exit wounds were very small, and the wound was recent. Complete excision seemed unjustifiably mutilating, yet anything short of this might lead to a very severe buttock infection.*

A.—There seems to be no doubt that the cult of excision of wounds has been too enthusiastically accepted, often to the exclusion of common sense. And so it comes about that sometimes more mutilation is done by excision than could ever have occurred from the wound itself, even if some infection supervened. A gunshot wound, if at all deep, is a very complicated cavity; so that even the most extensive excision may fail to remove all devitalized tissues, some of which move away for considerable distances by retraction of contractile and elastic structures and by change in posture after infliction of the wound. Thus the theoretical ideal is not achieved, while extra damage may have been done to important structures in the attempt. This criticism is substantiated by many cases seen in the present war. Further, the local application of the sulphonamides, together with their internal administration, has so affected the question that we feel it is time the whole subject was reviewed. In several cases seen earlier in the war and comparable with that described in the question, a very limited opening of the wounds of entrance and exit, removal of any foreign material, and the instillation of a sulphonamide powder through the track, produced very satisfactory results.

Stilboestrol for Prostatic Cancer

Q.—*A patient aged 84 has had his prostate removed. It turned out to be malignant, and he is being treated by deep x-ray therapy. When this course is concluded would it be advisable to put him through a course of stilboestrol? If so, what doses would you recommend, by mouth or intramuscularly, and for how long a period? If intramuscular, would it be preferable to use stilboestrol dipropionate?*

A.—There are two ways of proceeding, either scientifically or empirically. If the former course is chosen, the acid serum phosphatase should be estimated, and stilboestrol or hexoestrol given until the acid serum phosphatase is reduced to normal limits. Sufficient dosage should be maintained to keep it to the normal figure. There is no need to give it subcutaneously, as both compounds are completely absorbed through the alimentary tract. Dosage is an empirical matter, starting usually with 1 mg. three times a day and increasing this to 2 to 3 mg. until the acid serum phosphatase is down to the normal figure. As little as 1 mg. a day may control the patient. If there is no access to a laboratory, then 1 mg. three times a day may be given, and if the patient's symptoms do not regress the dosage may be increased. The danger of side-effects is very slight indeed, and a large number of cases have been observed which have shown no development whatsoever of side-effects of an unpleasant nature—enlargement of the nipple, etc.

Paget's Disease of Bone

Q.—*A male patient aged 66 has been x-rayed, and the diagnosis of Paget's disease of the bones was given. He gets very severe pain, especially in the femur and pelvis. (1) What is the prognosis? (2) What treatment can be given? (3) Does aluminium acetate help? If so, what dose should be given? (4) Should the patient be allowed to walk about?*

A.—In the examination of many radiographs of patients suffering from other conditions it is very frequent to detect Paget's disease of the pelvis and upper end of the femur. The majority of these are without symptoms; therefore one has to be sure that there is not some other condition present responsible for the pain, apart from Paget's disease. One should, of course, be perfectly certain that the radiographic appearances are those of Paget's disease and not, in the case mentioned, secondary deposits of prostatic carcinoma. Where the bones of the hip are involved by true osteitis deformans

the pain is not infrequently due to osteo-arthritis of the hip-joint, the treatment of which is the same as when it is not associated with Paget's disease. Immobilization of the joint for a period is well worth while. In intractable cases operative treatment is occasionally indicated. Before the latter is done, however, there is in the osteo-arthritis associated with Paget's disease a real possibility of relief by radiotherapy. It is by no means certain, but the present writer has seen good results. The rationale of aluminium acetate therapy is not very clear in osteitis deformans. Again this has been used by the present writer and certain of the patients have recorded benefit. The dosage used is that recommended by Helfet (*Brit. J. Surg.*, 1940, **27**, 651)—namely, one-third of a drachm given three times a day with syrup and large quantities of milk.

In conclusion, I believe that it is unlikely that the Paget's disease by itself is the whole cause of the patient's symptoms.

A Symptomless Bursa

Q.—*Some years ago a patient was diagnosed as having a ruptured internal cartilage of the knee. Two or three years after this, owing to limited movement of the joint through adhesions, the knee was manipulated under anaesthesia and the range of movement restored. There is now, nine years after the manipulation, a fair-sized bursa over the inner tuberosity of the femur. This gives rise to no pain or disability. The patient is not anxious to have an operation, and I should be glad to know if there is any indication for surgical intervention.*

A.—It is very difficult to decide from the description given what the exact diagnosis is in this case. However, the commonest bursa on the medial side of the knee-joint is a semimembranosis bursa. This is situated postero-medially, and is more prominent with the knee-joint in full extension. The only symptoms it causes as a rule are inconveniences due to its size, or pain due to tension within it. In either of these circumstances an operation should be performed to remove it. In the absence of symptoms, however, as in this case, there is no indication for operation, especially as the patient does not wish it. I cannot see any particular connexion between this bursa and the previous medical history. Both conditions are very common, and therefore quite likely to be coincidental.

The Tobacco Habit

Q.—*Is there any drug or chemical which, when administered, gives a distaste for smoking, and, if so, can it safely be given to a smoker? One sees constant advertisements about this in the Press, and I am asked about it from time to time.*

Q.—*Can any suggestions be offered for the cure of two patients (a male of 55 and a female of 53) who for years have smoked excessively? Both desire to be cured of the habit, but neither has the strength of will to give up the weed. The man smokes a pipe and cigarettes, and the woman cigarettes only. Which is the lesser evil? Could a psychologist help in such cases?*

A.—There is no drug or chemical which can be relied upon to give a distaste for smoking. Various preparations which induce nausea may have this effect, and stramonium given in sufficient dosage to cause dryness of the mouth may also act as a deterrent. The most effective method of tackling the problem in those who are anxious to be cured is the application of hypnotic suggestion.

Cockroaches

Q.—*What is the best way to combat the beetle pest?*

A.—Repeated applications of powder are the only measures that can be used against cockroaches (misnamed "beetles" or "black-beetles"). Of the powders available for civilian use, sodium fluoride is the best, but may be considered too dangerous to be used in kitchens without careful supervision. Boric acid or borax are the next best alternatives: they must be very finely ground to be effective. The powders are blown into crevices or dusted round the corners of the floor where the roaches are believed to be hiding.

Prescribing a Scheduled Poison

Q.—*I am asked by a local colliery to furnish a prescription for sulphacetamide 10% or 30% to be used as eye-drops by their unsupervised ambulance-room attendant. As this is a scheduled poison, am I in order in issuing such a prescription, and, if so, to whom should it be addressed?*

A.—The Poisons Regulations provide for the purchase by a firm of poisons to be used in the course of their business, but, in the view of the Pharmaceutical Society, this does not apply to poisons required for medical purposes in the treatment of members of the staff. An employee treated in an ambulance room is in the same position as any member of the public, and any prescriptions to which the Poisons Regulations apply should be made out in the name of the patient. The alternative is for the doctor to order the eye-drops to be supplied to him for use in his practice just as though he were stocking his own dispensary. He will then be responsible for the use to which the eye-drops are put afterwards.

Keeping Dentures Clean

Q.—*I would like to know the recipe for removing from dentures a persistent brown deposit. I have tried dilute HCl without effect, and steeping them in water containing a few drops of milton.*

A.—The brown deposit on the dentures is probably tartar which has become saturated with nicotine. This can be removed only by scraping with an old scalpel until the surface of the denture is reached. Better still, let the dental surgeon have them for an hour, as he has facilities for cleaning and polishing. The proper way to keep a denture clean is to scrub it night and morning with soap, using a stiff nail-brush or tooth-brush. Chemical cleansers are in the long run harmful to the base material and should not be used as a routine. Ordinary whiting is excellent for keeping a high polish on the surface, and is best applied with the brush after the soap has been washed away. Some mouths deposit tartar and stain more readily than others, and this hard scrubbing may be necessary after every meal.

Campden Method of Preserving Fruit

Q.—*What happens if Campden solution tablets, containing 48% SO_2, are used for preserving fruit, and, later on, the whole boiled before use? Is the SO_2 the active thing in the tablet, and is the SO_2 driven off by the boiling, or what exactly happens?*

A.—Campden tablets are made from sodium metabisulphite. This compound reacts with the acids in the fruit juice and SO_2 is formed. If the vessel containing the fruit is tightly stoppered, most of the SO_2 remains in solution at room temperature, and it is this SO_2 in solution which prevents bacterial growth. One part in 1,000 is effective, and if the tablets are used according to the prescription this strength is attained. When the vessel is opened and the fruit is boiled, as it should be before use, the SO_2 is driven off, and the sodium salts of the acids in the fruit juice remain behind. Incidentally, therefore, Campden tablets, while acting as a preservative, also tend to neutralize the acidity of the fruit, so that it may be stewed with less sugar.

LETTERS, NOTES, ETC.

Diathermy in Eye Disease

Mr. Frank W. Law, F.R.C.S. (London, W.1), writes: May I be permitted to say that I think the opinion expressed in the reply to the inquiry for reliable information about the use of diathermy in eye disease (Oct. 2, p. 442) was unjustifiably lukewarm? Further, your few notes hardly answer the question asked. Your correspondent might find some answer to his query in the following references: Law, *Trans. Ophthal. Soc. U.K.*, 1933, **53**, 474; Law, *Brit. J. phys. Med.*, Dec., 1936; Law, ibid., July, 1940, p. 122; Lloyd, *Trans. Ophthal. Soc. U.K.*, 1939, **59**, 181; Phillips, ibid., p. 193. It is obvious that I cannot express an opinion on the reliability of the information contained in most of these!

Proof of Negligence

Mr. Walter Simpson (Bristol) writes: The "conventional course" suggested by your correspondent (Aug. 7, p. 183) is not now permitted. Recently the Court of Appeal ruled that counsel *cannot* (1) submit there is no case to answer and (2) subsequently call witnesses if the judge rules to the contrary. If defendant relies on his submission that no case has been made out he cannot subsequently call witnesses to disprove the charge. My authority is Mr. Justice Hilbery, King's Bench Division, Stacey *v.* Clarke, Col., July, 1943.

Transparent Disinfectants

Dr. J. E. J. Palser (Theydon Bois) writes: In the paper by Lieut.-Col. R. K. Debenham on war surgery in the Middle East (*Journal*, Aug. 21, p. 223) I was interested to read his warning against putting dentures into a preparation in which they are out of sight and may be lost. This warning would apply also to the immersion of surgical instruments in a similar preparation. I may point out, however, that lysantol, an effective non-irritant disinfectant, with a Rideal-Walker coefficient of about 4, will bear dilution with as much as 15 parts of tap water without producing more than a slight opacity, and if diluted with distilled water in any proportion forms a perfectly transparent solution.

Hyperidrotic Axillae

Dr. D. M. Macdonald (Arnside) writes: Should the treatment suggested under the above heading in the *Journal* of Oct. 2 (p. 440) fail, an almost certain remedy will be found in the use of the constant current (20 milliampères) twice a week for from ten to twenty minutes. The negative pole is applied to the affected area.

Disclaimer

Dr. K. I. E. McLeod (Dingwall), whose letter, printed in the *Journal* of Sept. 25, was quoted by several of the national newspapers, wishes to disclaim any knowledge of how this quotation was made. He expresses alarm at the frequency with which letters to scientific journals are quoted in this manner without the knowledge or permission of the writer.